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HYGEIA

A JOURNAL OF INDIVIDUAL AND COMMUNITY HEALTH

Published by the American Medical Association

Feb., 1924 25 Cents

Bald-headed Optimists
Picking Our Greatest Crop too Soon
Insulin
What Is the Use of Pain?

A Patient's Plea

YOU are my physician. I come to you because I believe in you; in your ability and your honesty. I believe that in coming to you I will get the best that money can buy in skill and purity of drugs. Not being acquainted with medical matters, I put myself in your hands, relying upon your judgment and your fairness to give me only the best and the most efficient treatment.

I am the patient, but I believe that you will do unto me as you would have others do unto you if you were the patient.

THE DERMATOLOGICAL RESEARCH LABORATORIES
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A JOURNAL OF INDIVIDUAL AND COMMUNITY HEALTH

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VOLUME 2 — FEBRUARY, 1924 — NUMBER 2

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The March Issue:

A number of articles written especially for those in the educational world.

PRESIDENT KEYES *of Skidmore College will tell the story of a great health movement—the cooperative work of physicians and teachers for the promotion of better health among school children.*

"Of What Value Are the Movies in Education?"—DR. FRANK N. FREEMAN, *School of Education, University of Chicago, will give some interesting results of his study of this question.*

"The best safeguard to mental health in childhood is self-directed activity on the part of the child," says DR. HELEN T. WOOLEY, *assistant director of the Merrill-Palmer School in Detroit. She will tell parents how to provide the environment which will make it possible for a child to keep himself busy and happy.*

Contributions to HYGEIA *are considered, and, if accepted, paid for. Stamps for the return of unaccepted manuscripts should be enclosed. All communications should be addressed to* HYGEIA, *535 North Dearborn Street, Chicago, Illinois.*

CONTENTS

COVER—WINTER WAVES
Otto Bahl

FRONTISPIECE — PAGE

PICKING OUR GREATEST CROP TOO SOON 71
Frances B. Williams

BALD-HEADED OPTIMISTS 74
Arthur J. Cramp

INSULIN 77
Morris Fishbein

A LITTLE GLAND WITH A BIG JOB 81
Benjamin Harrow

WHAT IS THE USE OF PAIN? 83
Edwin P. Lehman

YOU AND I AND PUBLIC HEALTH 88
Cornelia James Cannon

THE SKIN AND COSMETICS 91
Joseph V. Klauder

CULTIVATING HEALTH ON THE FARM 95
C. M. Siever

NOBEL PRIZES IN MEDICINE 97

JOHNNY WEIGHS ONLY THIRTY POUNDS 102
Alice Irwin

LIE FLAT, SIT STRAIGHT, STAND TALL 104

HELPING THE HOUSEWIFE MARKET FOR HEALTH 105
M. Faith McAuley

CLEAN WORKERS MEAN CLEAN FOOD 111
L. B. Gloyne

HOW MUCH DO COLLEGE GRADUATES KNOW ABOUT HEALTH? 113
Thomas D. Wood

TEACHING HEALTH BY POSTERS 115
Felix J. Koch

PLAIN FACTS ABOUT HEALTH AND DISEASE:
Health News of the Month 117
Physical Defects of Infancy and Childhood 118
The Possibility of Extending Human Life 118
Prescribing by Mail 119
The Value of Fat 119
Safe Housing for Unfortunate Dependents 120
Have Women Genius for Invention? 120
New Thought 121

FRESH AIR ELIZABETH 122
Margaret E. Greenwood and Eleanor M. Fonda

NINE LITTLE SCHOOL BOYS 123
Rosalind Sibold

HEALTH NEWS AND VIEWS 124

BOOK REVIEWS 129

QUESTIONS AND ANSWERS 130

HEALTH REVIEWS 132

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Pacific and Atlantic

Picking Our Greatest Crop Too Soon

FRANCES B. WILLIAMS

N the *New York World*, F. P. A., the columnist, defines health as "the thing that makes you feel permanently that Now Is the Loveliest Time of the Year, and that everything but what you are doing is inconsequential." This is a definition that might apply equally to childhood, for healthy childhood is perennially happy and absorbed in what it is doing.

But there are large numbers of children in the United States to whom this definition of health does not apply, for they are having no childhood. They are the children who labor before their time. There are still many over a million of them in our country, so they should form a very real part of our national concern.

A six-year-old beet picker of Colorado. The beets weigh from three to ten pounds each.

The close relationship between child labor and child health has been for some years so well recognized that it now needs no exposition or argument to prove it. The people of America realize that toil for wages is bad for the health of children, but they still allow child labor to exist, so perhaps an inquiry into the extent of its present influence on the health of American children would not be out of place.

Children in large numbers still work in agriculture, in tenements, in factories and in street trades—and occasionally even, though against the law, in glass factories and coal mines.

Some forms of agricultural work are excellent physical training for growing children. Many of our sturdiest specimens of manhood and womanhood today grew up on farms where they did their part in the daily chores, and actually helped with the heavier labor. But present-day agricultural work for children presents no such pleasing picture.

The children who work with their parents in the hand labor of raising sugar beets are usually in the fields from 10 to 14 hours a day. In certain stages of the work they must remain in a stooping posture all day; at others they must pull and lift heavy beets which overtax their strength. In the autumn they are exposed to chilling breezes as they hurry to complete the harvesting, and at all times they work at such a pressure that they cannot stop for rain, dampness or broiling heat. The living quarters provided for them usually force them to sleep half a dozen or more in a single room.

Many of these conditions find duplication in other forms of large scale industrialized agriculture in which families of children are employed, such as cranberry picking and truck gardening. These things point their own moral. Specimens of healthy childhood may exist under these conditions, but it is not the fault of the work in which they are engaged.

The average person is already cognizant of and readily admits the dangers to proper physical development inherent in tenement and factory work for children. The case against these is more apparent and easier to state than that against agriculture. Impure air, lack of exercise, cramped positions, eyestrain—these are only some of the indictments of these occupations as a menace to child health.

With only these few citations it is evident that the case against child labor and the case for child health are synonymous, without reference to the incalculable mental effects of premature labor on the children engaged in it. All this being so, what is being done about it? What has been done about it?

What National Committee Has Done

In 1904 the National Child Labor Committee was founded, with its purposes:

To investigate and report facts concerning child labor.

To raise the standard of public opinion and parental responsibility with respect to the employment of children.

To assist in protecting children by suitable legislation against premature or otherwise injurious employment, and thus aid in securing for them an opportunity for elementary education and physical development sufficient for demands of citizenship and requirements of industrial efficiency.

To aid in enforcement of laws relating to child labor.

To co-ordinate, unify and supplement the work of state or local child labor committees, and encourage the formation of such committees where they did not exist.

The first secretary of the National Child Labor Committee was Dr. Samuel McCune Lindsay, now professor of sociology at Columbia University. In 1907 Owen R. Lovejoy became general secretary, and his name has been closely associated with the child labor movement ever since.

Has Fought Industrial Greed

The situation that confronted the committee as it went about its work was ramified by deep-rooted prejudice, industrial cupidity and greed. There was almost universal public ignorance of the whole situation. Thousands of children were working within the walls of unsanitary factories and mills, in mines, in city streets, and in sweatshops. American childhood was growing up with scarcely any legal protection worthy of the name, and with no compulsory school law properly enforced. Its health was being threatened and its morals undermined.

These children worked long hours day and night, and in only eight states were they protected against night labor. The 14 year age limit was set up in only 15 of our states. Eleven states had no age limit or any other restrictions on the labor of children. Seventeen states at this time had no school attendance laws, and 27 had no educational requirement whatever for child laborers. The whole situation was bad. The conditions under which children worked were demoralizing, and the earnings gained from their drudgery were meager and stingy. As one after another of these industries was studied and as conditions were shown up, the country began to take account of the wastage caused by child labor.

This cranberry picker, aged 8 years, is carrying her full box to be emptied. School opened four weeks ago, but she is still toiling in the fields.

Not even when an investigator put the string of beads around her neck did this 13-year-old New Jersey girl look up from her embroidering. Half of every month she is absent from school for work. She earns twenty cents for the work she does between four and seven every evening.

State Laws Differ Widely

After almost twenty years of unceasing efforts to develop public understanding of the case against child labor, and to bring legislative bodies through this public sentiment to pass laws regulating the labor of children, the beginning of the year 1924 finds conditions vastly improved over those that existed when the committee started its work. Now only three states allow children under 14 to work in factories and stores; 32 states say that children under 16 shall not work more than eight hours a day; and 34 prohibit night work for those under 16. Many particularly dangerous and unhealthful forms of labor have been barred to children altogether.

But there is no way of saying just what America's stand on child labor is. The laws of all our states are a mass of variances. Work that is forbidden in Illinois may be done across the state line in Missouri. The industry of a state that has good child labor laws may suffer from the competition of states that employ the cheap labor of children. We have now no national standard, no federal police power over child labor. We *have* had federal control over child labor, and during the periods when it existed there was noticeable improvement in the working conditions of children in both high standard and low standard states. A brief survey of such legislation follows:

Frances and Marie are helping pick cranberries in a New Jersey bog. Marie is five and has been picking for two years. Frances is three.

Laws Unconstitutional

In 1916 the first federal child labor law was passed. This excluded from interstate commerce any article manufactured in factories where children under 14 were employed. The law went into effect September 1, 1917, and was declared unconstitutional by Judge Boyd of the Western district of North Carolina in August, 1918. His decision was affirmed by the Supreme Court in 1918 by a vote of five to four.

This defeat spurred on the friends of child labor reform to secure another federal law, and in February, 1919, a law was passed placing a 10 per cent. tax on the net profits of all factories and mines employing children. This law went into effect on April 25, 1919. Judge Boyd, before whom was tried a case seeking to invalidate the act, declared it unconstitutional, as he had previously declared the first federal law, and his decision was affirmed by the Supreme Court in May, 1922, with only Justice Clarke dissenting.

Apparently the only means of expressing a national sentiment on child labor is to adopt an amendment to the federal constitution giving Congress the authority which it now lacks to deal with child labor problems in the various states. There was such an amendment introduced in the last session of Congress and passed on by the judiciary committee of both Houses, reading: "The Congress shall have power, concurrent with that of the several states, to limit and to prohibit the labor of persons under the age of 18 years." There is little doubt that it will be voted on in this session of Congress. There is already a strong and widespread sentiment for this amendment throughout the country, and it has been endorsed by innumerable organizations.

When the men of America were drafted for military service in 1917 and 1918, an alarmingly large proportion of them were found physically unfit. Many people were surprised to find this condition in our supposedly healthy young nation. It was ascribed to various causes. But the larger part of the percentage of physical unfitness in America may be ascribed to just one cause: a cause that American public opinion could eliminate if it would.

That cause is the labor which robs children of their health before their full growth is attained—the labor of over a million children in the United States.

In the United States there are more than 1,600,000 child laborers.

Sixteen states permit children under sixteen to work more than eight hours a day.

In fourteen states children under sixteen are allowed to labor at night.

Three states permit children under fourteen to work in factories.

A chain is only as strong as its weakest link.

These overworked children are the parents of tomorrow, the law makers and the law breakers.

What are you doing to make better child labor laws in this country?

Bald-headed Optimists

Van Ess and its Alluring Appeal

ARTHUR J. CRAMP

THERE is nothing more contemptible than a bald man who pretends to have hair," said Martial, nineteen hundred years ago. The Roman epigrammatist was a little harsh in his characterization. Had he lived in the twentieth, instead of the first, century he would possibly have substituted "humorous" for "contemptible."

In the good old times, before Congress enacted a pure food and drugs law to plague the dealer in faked foods and fraudulent medicines, the majority of newspapers and magazines accepted any "patent medicine" advertisement that would not debar them from the second-class mail privileges. In those happy days he who would exploit the sick dealt largely in "tonics" and "cures."

But times have changed. It has become increasingly difficult to get "patent medicines" into the advertising pages of reputable newspapers and magazines; at least if they are sold as medicines, and not as "food-tonics" or as "tonic-foods." Since advertising is the life blood of the nostrum industry, this change of attitude has brought about a modification of tactics on the part of those who would achieve wealth via the nostrum route.

4 Men in 7
Bald at 40
—yet 95% needlessly!
Science discovers falling hair due to simple infection (Sebum). Now quickly overcomes it.
Pay Nothing
Written Guarantee to Grow Hair This New Way
The Infected Sebum
Hair Roots Rarely Die
New Hair or No Money
Now We Remove It
Note this New Way
VAN ESS
Liquid Scalp Massage

The Van Ess concern, in common with most nostrum organizations, widely disseminates misinformation. According to the advertisement here reproduced in miniature (the original measured 9 by 13 inches), baldness is due to "an infectious scalp oil, known as Sebum." The fact is, of course, that sebum is a body secretion as normal as sweat. Its function is to lubricate and protect the skin and hair.

The same advertisement also says that Van Ess "combats the Sebum and removes it." If it did, the scalp of the user would soon be like a piece of dried-out parchment; as lifeless as the scalp of King Tut.

The Trade in Cosmetics

Today, instead of floating a new sarsaparilla, a cure for female trouble, or a universal elixir for what-have-you, the aspiring entrant to the "patent medicine" field concocts a cosmetic nostrum—a hair grower, a hair dye, a complexion beautifier or possibly a bust developer. Nostrums of this type are still viewed somewhat tolerantly by the advertising departments of publications that fight shy of the old time "patent medicine" fakes.

Especially is this true of remedies that are for external application. It is an unusually careful newspaper that will turn down advertising of "hair tonics" and "dandruff cures." Such may be the explanation of the large number of remedies of this type that are now making an appeal to the bald-headed contingent.

A good deal of money has been spent on printers' ink in an attempt to convince men with bald heads and women with "dull, lusterless locks" that "Van Ess Liquid Scalp Massage" and "Van Ess Special Dandruff Massage" hold out hopes for blasted desires.

How Science Looks to Van Ess

In accordance with Article I, Section 2 of the by-laws of the Amalgamated Association of Cosmetic Nostrum Makers, one finds Science (with a capital "S") dragged in by the scruff of the neck; butchered to make an appealing advertisement.

Much of the Van Ess advertising illustrates the nostrum exploiters' pictorial conception of a scientist: A studious looking gentleman with horn-rimmed spectacles and laboratory gown, holding the inevitable measuring glass, and surrounded by beakers, pestle and mortar, test-

tube stands and other laboratory paraphernalia. By an oversight the Van Ess artist failed to put a glass retort in his pictorial conception of Science Discovering Van Ess. This should be corrected in future advertisements.

From the advertising we learn that while "Four Men in Seven are Bald at Forty," now that Van Ess has been discovered "Only Five Men in One Hundred Need Ever Be Bald." The advertisements show the typical, greatly magnified view as conceived by the United Hair Growers Union, of a cross-section of a hair with the different layers of skin. The tubule, through which the hair grows, looks, in the Van Ess advertisement, like a post hole with a somewhat bulbous base. Growing from the base is what appears at first sight to be a young spring onion but which, according to the advertisement, is a poor stunted hair that cannot grow because the top of the post hole is filled with small rocks labeled "caked sebum."

The physical make-up of a package of cosmetic may determine whether the business is a success or a failure. Who knows how many brands of talcum powder and perfume are purchased because they are marketed in handsome containers and not at all because of any superiority of the contents?

Those who put out Van Ess are, evidently, alive to this fact, for the stuff comes in a package that impels attention. Each bottle of Van Ess has a rubber cap with several nipples on the outer surface. Three of the nipples are hollow. This nipple-surfaced rubber cap is screwed on to the neck of the bottle containing the Van Ess preparations and he who expects to grow hair is instructed to rub these nipples over his scalp.

Hair Does Not Grow Like an Onion

A highly imaginative picture in the little booklet that comes with the nostrum purports to show just how each rubber nipple fits into its own particular hair follicle, removes the caked sebum and causes the poor stunted hair to flourish like the green bay tree!

Possibly a hundred years from now exploiters of "hair growers" (they will still be doing business) may know enough about the minute anatomy of the skin and its appendages to get away from the idea that the hair grows out of the skin like a stalk of wheat or an onion growing out of the soil.

Some of the claims made for Van Ess are:

"We Guarantee To Make Hair Grow. To Make It Silky, Lustrous, Beautiful."

"Remove that infected oil—Sebum—and soon your hair has the silken loveliness, the sheen and beauty for which every woman strives. Our method accomplishes that result."

"We guarantee to stop falling hair in two weeks. We guarantee to grow new hair. If we fail, your money back without question."

"Experiments of years prove it effective on 91 heads in 100. Foremost authorities approve it. World noted dermatologists now employ it—many charge as much as $500 for the treatment."

Costs Nothing
Glorious Hair Guaranteed!
New Hair Grown in 90 Days. Falling Hair Stopped or Money Refunded. This New Way
Science discovers most falling, lusterless hair due to simple infection (Sebum). Now quickly overcomes it
This offers you a test, under written money-back guarantee, of the remarkable Van Ess method which is bringing hair beauty to the nation.
Hair softly gleaming, a world of it—countless women now enjoy it!
The test we offer you, they made. And every day, scores write to thank us for it.
Your own druggist or department store gives you the signed warrant.
Falling hair stopped. New hair grown in 90 days. If the treatment fails, it will cost you nothing.
That Infected Sebum
Science now traces most hair troubles to a simple infection of that oil in your scalp, called Sebum.
It has been learned that hair roots rarely ever die. And they can be revived.
We have proved this conclusively by actually growing new hair in 91 cases in 100.
We do it by combating that infected Sebum in a new way—a scientific way heretofore unknown. Results are quick and amazing. And so certain that we have no fear to guarantee our method.
Why Your Hair Lacks Life
Sebum is an oil that forms at the follicles of the hair. Its natural function is to supply the hair with oil to make it soft and wavy. But, science now proves that it is also the cause of most hair troubles.
Frequently it becomes infected. It cakes on the scalp; clogs the follicles and plugs them. You can see it in your hair, either in the form of dandruff or an oily excretion at the hair roots.
Bacteria by the millions breed in it and often inflame the scalp. Then they begin to feed upon the hair. Soon falling hair starts. In a short time all the natural lustre and beauty of your hair are gone.
But—and note this scientific fact — remove the infected Sebum and the hair reverts back to the softness and brilliancy it displayed when you were a school girl.
The Van Ess treatment accomplishes that result. We know you will doubt it. So we guarantee each 90-day treatment.
New hair grown (in 90 days) and falling hair stopped. Your own druggist gives you our guarantee to do these things. He signs it. If we fail, your money will be refunded by us without argument. Go to any druggist or department store today. Ask for Van Ess Liquid Scalp Massage. Written guarantee accompanies each 3-bottle treatment.
VAN ESS
Note This New Way
—It massages the treatment directly to the follicles of the hair
VAN ESS

Here is a miniature reproduction (it measured 7 by 12 inches in the original) of a Van Ess advertisement appealing to women. "Glorious Hair Guaranteed" if you will but buy Van Ess. Wonderful what a little kerosene and alcohol will do when put out under a fancy name!

Has "Money Back Guarantee"

The money back guarantee sounds plausible and doubtless sells many "treatments." The shiny-pates will use the stuff, decide after spending varying amounts of money on it that they have been humbugged once more, charge it up to profit and loss, and forget it—until the next surefire hair-grower comes to their attention. If, as someone who knew has said, a sucker is born every minute, there is a bald-headed sucker born every ten minutes. This perennial group makes a sufficiently wide and lush field for the exploiters of cures for baldness. And the exploiters of hair-growers always see to it that the bald-headed sucker never gets an even break. So long as hope springs eternal

in the breast of the bald-headed and such cures can be advertised, the latter will sell and the former be "sold."

A specimen of "Van Ess Special Dandruff Massage" was purchased and turned over to the chemical laboratory of the American Medical Association. Here, in effect, is what the laboratory reported:

> " 'Van Ess Special Dandruff Massage' is sold in an amber colored bottle containing about 4 fluidounces. The label declares the presence of 20 per cent. of alcohol. The preparation is a perfumed liquid which separates into two layers on standing. The upper layer, which amounts to a little more than one-third (about 36 per cent.) of the whole, is pale yellow and consists essentially of a petroleum oil which appears to be kerosene. The lower layer, which is a darker yellow, appears to be composed of water and alcohol containing small amounts of quinin sulphate, coloring matter and perfume. Although 20 per cent. of alcohol is declared on the label, analysis disclosed only about 14 per cent. The results of the examination indicate that the composition of the preparation is essentially as follows:
>
> | | |
> |---|---|
> | Kerosene | 36 per cent. |
> | Alcohol | 14 per cent. |
> | Quinin sulphate | 0.06 gm. per 100 c.c. |
> | Water, perfume and dye to make | 100 c.c. |
>
> "It seems probable that a mixture of 36 parts of kerosene and 14 parts of denatured alcohol (denatured by the addition of 2 grains of quinin sulphate to each fluidounce) and 50 parts of water would have whatever therapeutic properties the Van Ess Special Dandruff Massage possesses."

An Optimist of the Optimists

Van Ess Special Dandruff Massage, if made with quinin-denatured alcohol, should cost not more than twenty cents a gallon. Van Ess sells for $1.50 for four ounces. Even after the Van Ess concern has paid its advertising bills, and they must be heavy, there should still be a handsome profit at selling twenty cents' worth of kerosene and alcohol for forty-eight dollars.

Until the accumulated experience of the bald-headed public overcomes the persuasive psychology of the advertising, the concern that puts out Van Ess will probably continue to pay handsome dividends to the stockholders.

Will Rogers, in one of his inimitable monologues, describes certain brands of optimists. One of them is the man who buys a bottle of hair-restorer from a bald-headed barber.

He might have added to his list the sanguine individual who believes in the Van Ess advertising.

PRIZE CONTEST FOR HEALTH CARTOONS

HYGEIA *has arranged a poster contest, and prizes will be given for the best cartoons on health subjects.*

The contest will be open to all high school students.

All details of the competition will be given in the March number of HYGEIA.

Insulin

MORRIS FISHBEIN

WHEN the scientific body that awards the Nobel prize each year met to consider the award for 1923, there was no question or debate as to the discovery that merited the honor. The prize was granted to Doctors F. G. Banting and J. J. R. MacLeod of Toronto for their work in the discovery of insulin, and each immediately donated one-half the award to colleagues who had shared in the discovery, Doctors C. H. Best and J. B. Collip.

In November, 1920, Dr. Banting, who had returned from war service, was practicing medicine in London, Ontario, and was demonstrating physiology in the medical school of Western University at that place. While reading an article in a surgical magazine, he chanced on a sentence which aroused the train of thought that finally led to his discovery of insulin—a substance that means a longer and more satisfactory life to diabetics.

The article which he read concerned a gland, known as the pancreas, that lies close to the stomach and the upper part of the intestines. This gland is composed of two portions, one of which creates a juice poured into the intestine, which aids in the digestion of food; it is the external secretion and it contains trypsin and two other digestive ferments. The pancreas contains also certain cells which, when seen through the microscope, are marked off from the remaining tissue and which are known by the peculiar name "Islands of Langerhans," the latter being the name of their discoverer.

Diabetes Centuries Old

Now diabetes is no new disease.

It was described by Aretaeus, a Greek who lived in the third century, A.D., and hundreds of scientists have worked steadily on the problem ever since that time. Indeed the history of the discovery of insulin is typical of all great medical discoveries of modern times. It represents the summation of a vast amount of knowledge contributed bit by bit by scientists all over the world. When Banting conceived his

Teddy, thin and listless as above, celebrated his sixth birthday on July 10, 1922, a diabetes patient. He weighed 27 pounds.

Insulin treatment was begun with the result that on January 16, 1923, he had become the sturdy fellow on the left, weighing 40 pounds.

On his seventh birthday, July 10, 1923, Teddy was the robust rider of the Irish Mail on the right, and weighed 49 pounds, a gain of 22 pounds in a single year.

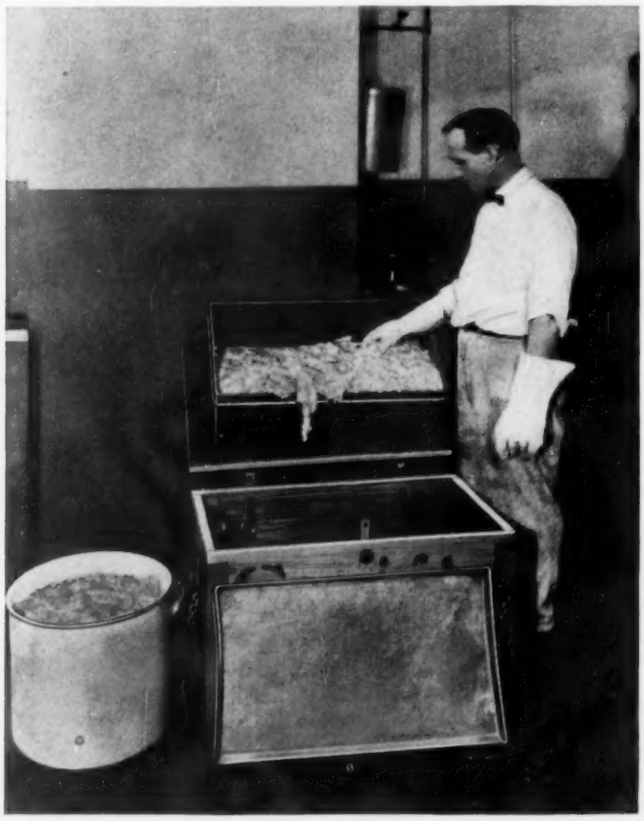
idea, he took it to Dr. MacLeod, director of physiologic research in the University of Toronto. Professor MacLeod, seeing the possibilities in the investigation, gave him opportunity to work, and provided him with a young assistant, Dr. C. H. Best. The particular problem on which they were to work was the extraction from the pancreas of another secretion, an internal secretion, not poured by the pancreas through a special duct into any other organ or to the exterior, but going instead into the blood stream.

Pancreas Yields Substance

Previous investigations had indicated that this secretion was manufactured in the Islands of Langerhans. It was known that when the tube which carries the external secretion—trypsin—was tied, the trypsin would back up into the pancreas, and by its digestive action would destroy the glandular tissue, leaving an organ which consisted chiefly of island tissue.

The investigators did such an operation on a dog. It was also known that an animal might be made diabetic by removing the pancreas; this operation was performed on another dog. Then, when sufficient time had elapsed to permit the breaking down of the pancreas in the first animal, it was painlessly chloroformed, the pancreas removed and an extract made from it. The extract consisted chiefly of island tissue, and this extract was injected into the diabetic dog. The result was the discovery that such injections produced a lower amount of sugar in the dog's blood and in its urine. This and similar experiments established positively the fact that there was present within the pancreas, and quite certainly in the island tissue chiefly, some substance, not available in the body of the diabetic, which was capable of meeting a deficiency and aiding the diabetic to make proper use of sugar.

Photos Courtesy Eli Lilly Co.
Grinding the glands before extraction



Insulin is made from a secretion of the pancreas. The photo shows the pancreas glands as they arrive in the insulin manufacturing plant, ready to be macerated before extracting the secretion with alcohol.

Drug Dosage and Animal Experiments

It now became necessary to devise a method of obtaining the extract in such form as to permit injections into the human being without danger from poisoning by extraneous and unnecessary substances, in other words, a pure product. It also became necessary to devise a method for measuring the dose to be given. How many persons who receive a dose of a medicine realize the amount of investigation necessary to determine these factors? It is necessary to test the effects of a drug on animals before it can be tried on the human being, and it is necessary to study very carefully the changes in the body following the administration of the drug, in order to be certain that no undesirable actions occur.

The Canadian investigators worked in a wholly scientific manner. Their experiments show great attention to the matter of controls.

Clarification of the liquid by centrifuge

For each animal that was tested, there was a normal animal with which to compare it. The investigators used many dogs, and a vast number of rabbits in making these necessary tests. Not until all the factors of danger had been thoroughly controlled was the drug administered to man. Had it been given without the guiding knowledge obtained by the observations on rabbits, it seems certain that overdoses might have been administered and patients have died.

Overdose of Insulin Dangerous

The effects of an overdose of insulin are striking; there is too great a lowering of the amount of sugar, and severe convulsions ensue which may lead to death. Insulin is a powerful remedy; its effects are certain and accurately measurable. If a human being is given too much, his blood sugar falls to a lower concentration. When he gets it around 0.07 per cent. he begins to be anxious and nervous about himself. He is likely to become pale, or to flush and perspire profusely. If the blood sugar concentration goes still lower his speech may become disturbed, and he may even manifest mental disturbances. These things too may be prevented, and immediately stopped once they have ensued, by the giving of a small amount of sugar, as for example in the form of four to eight ounces of orange juice. These facts also were discovered by properly conducted experiments.

The investigators now turned their attention to the problem of this disease in human beings, and the results have already been broadcasted through medical periodicals, newspapers and magazines. They are far beyond the early hopes of scientific investigators of the disease. In that terminal stage of diabetes known as coma, when the patient sinks into unconsciousness, insulin seems actually to restore life. Of far greater importance, it offers for the vast majority of diabetics comfort and extended existence. Its administration is closely bound with a knowledge of the food taken into the body, for it is known that a certain amount of insulin will aid the body in handling a certain amount of sugar. When the physician decides to place his patient on the insulin treatment, he usually asks that the patient come into a hospital so that he may first find out the patient's normal ability to digest sugar, and it is this ability that the physician supplements by the giving of insulin.

Manufacture and Sale

One of the unusual aspects of the insulin discovery was the method of control in its sale. The discoverers did not wish to profit unduly by their work, but they were anxious that its manufacture and application on a large scale be scientifically controlled. Arrangements were, therefore, made to have it manufactured under accurate supervision in the United States by the Eli Lilly Company and in Canada by the Connaught Laboratories, and more recently in certain other home and foreign laboratories.

The process of manufacture is an interesting one. The Islands of Langerhans constitute a small portion of what is relatively a small gland. In stock yards and packing houses this gland is called sweet breads; the sweet breads served under glass in the restaurants are usually the pancreas of the sheep or hog, since these are small. The beef pancreas is a much larger organ, weighing about a pound or a pound and a half.

Here the final product is being separated. Careful filtering is accomplished by the vacuum process.

The method devised by Collip for obtaining insulin from the pancreas involves repeated extraction of the ground-up pancreas with alcohol, in order to remove the unnecessary

Insulin is injected with a needle under the skin; therefore it must be clean and free from bacteria. In this photo the girls are filling the ampules, or containers, in which the insulin is kept for treatment.

tissue substances. When this is done on a small scale in the chemical laboratory, there is, of course, considerable wastage of raw material and of substances used in the extraction.

The application of the matter on a commercial scale involved additional problems. How these problems were overcome is shown in the illustrations accompanying this article. They were not only overcome successfully, but continued improvements have made possible the provision of the life-saving remedy at a reasonable price.

Juvenile Diabetes

One of the most striking effects of the work was the result of the use of the remedy in the diabetes of children, or juvenile diabetics. This condition had previously been considered invariably fatal. Now the child may be treated satisfactorily, and it seems possible that its development under the influence of the drug may permit a gradual lowering of the dosage to amounts that may be administered with little expense or difficulty.

After the investigators had completed the trials of the preparation in their own hospital, plans were made for extensive clinical investigation in other institutions in which there were men capable of conducting scientific studies on diabetes. More than 50 institutions were utilized in order to give the drug the most complete possible scientific trial before offering it to the medical profession in general; and when at last these trials were completed and the cooperating manufacturing concerns had fully developed the machinery for production of the drug on a large scale, it was released to the medical profession throughout the world.

Patients Must Do Their Part

It should be understood that if the patient is to receive the greatest benefit from this new remedy, he must cooperate fully and intelligently with his physician. As soon as he discovers through competent examination that he is excreting sugar in his urine, he should consult his physician as to the use of the drug and a proper diet.

In many instances, the use of insulin is unnecessary because the patient is able to live satisfactorily without insulin on a diet with the proper amount of sugar or carbohydrate material. In other instances, the dosage of insulin may be very small, but this will depend on a careful and intelligent study of each case.

It is now rather generally known by the public that insulin is a preparation which is administered hypodermically, that is, injected with a needle under the skin. It cannot be taken by mouth, because the substance is digested before it can be absorbed into the blood. This does not mean that the patient must seek his physician for every treatment, because many competent specialists in the treatment of this disease have found that patients may be taught to regulate their diet and use the drug intelligently.

Recognition of the Work

As soon as it became known that this discovery was available, diabetics flocked to their

Labeling and packaging the insulin containers

physicians and began to inquire as to the possibilities of its use to "cure" the disease; but the drug is not in the usual sense of the word a "cure" for diabetes. Diabetes represents the absence from the body, probably as the result of disease, of certain substances which are responsible for the control of the digestion and use of sugar, and insulin cannot restore these

tissues or substances any more than the injections of other glands can restore youth to the aged. It can only replace temporarily the substances that are absent; but in the case of a diabetic, this constitutes the difference between life and death.

Naturally Doctors Banting, Best, Collip and MacLeod have received great honors at the hands of their colleagues and of the world. The Canadian government has granted to Dr. Banting the sum of $7,500 per year for life; the Ontario government has provided $10,000 a year for a chair of medical research, now held for the first time by Dr. Banting; learned societies throughout the world have greeted him with the applause usually accorded only to military heroes.

The victor in the conflict of science with disease is certainly deserving of the wreath of the conqueror.

A Little Gland with a Big Job

BENJAMIN HARROW

IT is plain to be seen that a certain dog is a very sick animal. He has had an operation on his neck. His skin is thick and dry. He is losing his hair. He is overfat and his muscles are flabby. His nervous system has been attacked, and his sexual functions have been interfered with. Dullness and general apathy are noticeable.

What is the matter with the dog which before this operation seemed perfectly healthy and normal?

His thyroid gland has been removed.

Robbed of Tiny Gland

It scarcely seems possible that the removal from the neck of the dog of a tiny tissue, weighing not more than one or two ounces, could bring about such important bodily changes. But that is exactly what happens when the thyroid gland is removed, either from an animal or from a human being.

So it can be seen that the thyroid plays an extremely important rôle in the general well-being of the body.

Of all the so-called organs of internal secretion, the thyroid gland is the best known.

Glands Manufacture Certain Fluids

Now, just what is an organ of internal secretion?

That can be briefly explained. We may look on a gland as any group of cells that, collectively, take certain materials from the blood and manufacture a substance or several substances which play a part in the activities of the body.

For example, the salivary glands manufacture saliva, and the gastric glands manufacture the gastric juice in the stomach. These glands have a tube, or duct, through which the secretions they manufacture are poured. The salivary glands are connected with the mouth by means of ducts, and the saliva pours through these tubes into the mouth.

Other glands with which physicians are familiar have no tubes or ducts. Such glands take materials from the blood, manufacture certain products, and pass the latter directly into the blood again.

Thyroid Is "Ductless" Gland

These glands are called "ductless" glands. Sometimes they are called glands of "internal secretion"; sometimes "endocrine" glands (endocrine being derived from the Greek, meaning to separate within). The thyroid is an example of a ductless gland.

Professor Carlson, I believe it was, who said that you can say nothing about ductless glands without qualification. No subject lends itself less to dogmatic statements; so that we shall be extremely careful in what we say, and shall try to avoid all the more questionable phases of the subject.

If nature does to the dog what the surgeon's knife can do and largely destroys the function of the thyroid gland, we get a similar picture to the one painted above.

Can Feed Person Thyroid Extract

And so it is with persons. The cretinous child is an example of lack of thyroid. Here in the cretin, we have a child whose growth is arrested, whose face looks deformed, and whose expression is quite idiotic.

That this terrible condition is due to the absence of thyroid secretion can be proved by feeding such a child thyroid extract. Immediately he shows a marked improvement.

Unfortunately this simple procedure of feeding with the extract holds good only for thyroid disease; the other ductless glandular diseases present far greater difficulty.

Absence of thyroid secretion in the adult, or its presence in insufficient quantity, gives rise to the condition known as "myxedema," to denote the gathering of mucous fluid beneath

the tissues and the consequent swellings all over the body.

Persons so afflicted look dull and apathetic, and are slow in movement, unsteady in gait, and odd in features. As with the child, so with the adult: treatment consists in the administration of thyroid extract—a treatment that must be kept up indefinitely, for the body no longer has the power of manufacturing the necessary secretion.

Goiter Traced to Thyroid

Another type which contains less thyroid secretion than under normal conditions is met with in some cases of goiter. The neck becomes swollen, due to the enlargement of the thyroid gland, and pressure is exerted on the windpipe and the gullet. At first sight an enlargement of the gland might indicate more than the normal amount of secretion of thyroid. Though this may be the case in some rare types of goiter, there is in our example less than the normal amount of secretion, the enlargement being due to a multiplication of cells. Most cases of goiter caused by lack of thyroid can be cured by the administration of thyroid extract, or of iodine in the form of one of its compounds.

The opposite picture to the cretin, the myxedema individual and the endemic goiter type, is seen in those instances in which there is a secretion of thyroid in excess of the normal. Several varieties of this type are known, but perhaps the most common variety is the one known as "exophthalmic" goiter, which, to be sure, is not always a clear-cut example of an oversupply of thyroid, but it will serve to illustrate what we have in mind.

May Remove Part of Gland

In exophthalmic goiter we find a general acceleration of processes, rather than their retardation. In the place of a stupid, apathetic expression we get an anxious, restless one. In the place of a deposit of fat there is a wasting away of the tissues. The action of the heart is often rapid, the thyroid is often increased in size (hence "goiter"), and there is a protrusion of the eyeball. The patient is nervous and restless; he cannot sit still.

Since here there is an excess of thyroid secretion, the patient cannot be treated by administering thyroid extract; that will merely make matters worse. The more obvious treatment is to remove part of the thyroid gland; and many American surgeons have been brilliantly successful with such operations.

But often enough various obstacles present themselves in the way of surgical treatment; then the advice of the doctor centers around the word "rest." In this connection Dr. Charles Mayo writes:

"The opinion of an eminent surgeon (Kocher) that 90 per cent. of all goiters can be improved so as to make operations unnecessary was probably based on observations of the effect of rest, for rest is the common element in all the various forms of treatment that have proved successful."

Two recent advances have been made in the study of the thyroid. One refers to an improved method of diagnosis of the thyroid gland activities, and the other to the discovery of the elements that form the thyroid.

Can Tell When to Stop Treatment

The body, we know, gives out heat. Recent experiments have shown that the amount of heat liberated is intimately related to the extent of surface of the body. In the normal, resting individual the heat production per square meter of surface has been found to be 39.7 calories per hour. Where the patient has less thyroid secretion than is found in the normal individual, he burns up less than 39.7 calories per hour, and where he has more secretion the rate is decidedly higher than 39.7.

For example, in an actual case of cretinism the number of calories burned up was found to be 22 per cent. below normal, and in a case of exophthalmic goiter, the metabolism was 75 per cent. above normal.

But this is not all. Having determined the rate of calories per hour, and having decided on a course of treatment, such treatment can be watched by redetermining, from time to time, whether the patient is normal. In the case of the cretin just cited, the patient was fed with thyroid extract, and periodic examinations revealed that the patient gradually increased the number of calories exhausted from 22 per cent. below normal, until the normal figure was reached.

Is More Than Half Iodine

The other advance in our knowledge of the thyroid is due to the work of Dr. Kendall, of the Mayo Foundation, who, after ten years of intensive research, has been able to isolate the active principle of the thyroid. The isolated substance has been given the name "thyroxin," and contains 60 per cent. of iodine. It took 6,550 *pounds* of fresh thyroid to yield a little over an *ounce* of thyroxin!

Dr. Kendall has not only succeded in isolating the active principle, but he has produced thyroxin artificially in the laboratory. This work of Kendall ranks among the very great scientific achievements of the present century.

What Is the Use of Pain?

EDWIN P. LEHMAN

Pain is sometimes a friend; sometimes a foe. When it warns us of danger ahead and when it assists the doctor to determine disease, it is an ally.

But when it continues after diagnosis is complete and treatment has begun, it is an enemy.

For centuries the battle to lessen pain has been carried on, but it is within the memory of men still living that the pain of surgery has been conquered. The story of this victory is told here.

PAIN is kind, for it is a warning, a signal of danger. A hand too near the fire feels pain and is withdrawn before it is seriously burned. A bare foot treading on a sharp object is warned before continued pressure may do greater damage. The pain of a boil announces the presence of dangerous invaders of the body that must be conquered ere they overwhelm it. The pain of a broken bone prevents free use which might increase the harm.

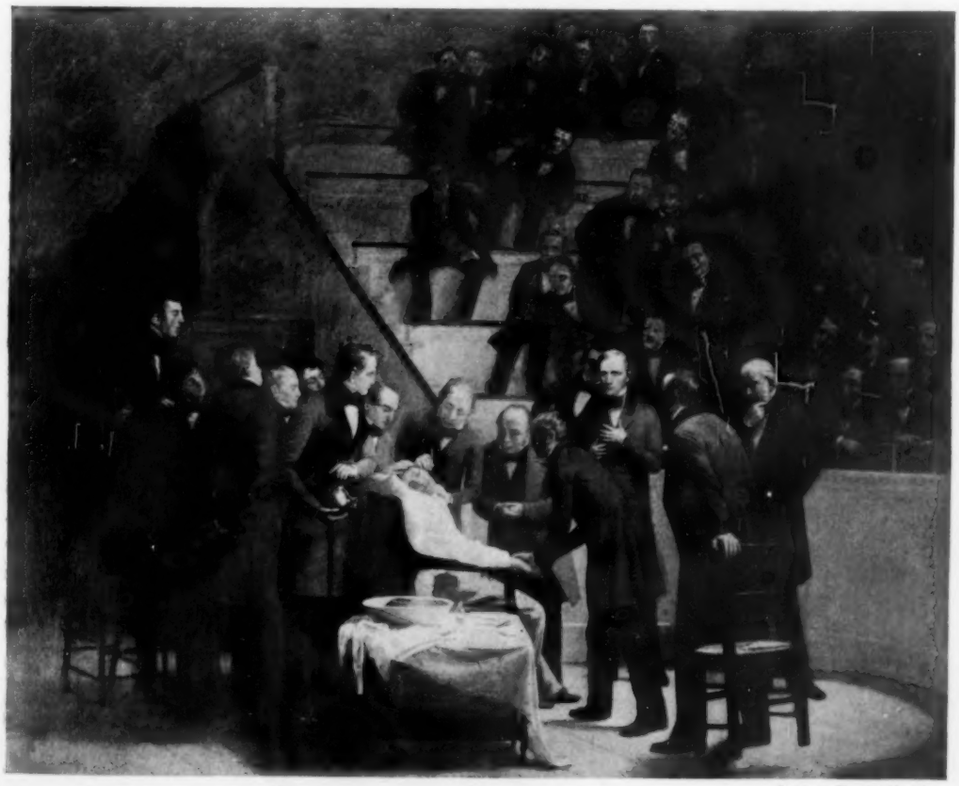
These instances seem obvious and hardly worth the citing. But any one who has ever seen the damage that may result from disease when pain is absent will at once recognize how fundamental pain is to the keeping of health. In certain abnormal conditions, the capability of suffering pain may be lost. Such a state exists in greater or less degree in various injuries to and diseases of the nerves that give sensation. Under such circumstances, injuries occur that cannot occur in the normal state.

A large majority of all patients come to their physicians because something hurts. They assume that if nothing hurts, nothing can be wrong. This common fallacious reasoning leads to delay and perhaps failure in the treatment of conditions which earlier might have been readily cured.

Pain, then, although not always present, is our most useful ally in protecting ourselves against disease and injury. In addition, it is a valuable guide, when properly interpreted, to the location and the nature of disease. It leads often by a direct route to knowledge that will aid in treating and perhaps in curing disease. In this respect we have made pain our handmaiden.

Imaginary Pain

Let me here take to task persons who apply a much misused phrase, the term "imaginary pain." Strictly speaking, there is no such thing as imaginary pain. The phrase has been loosely employed by laymen and physicians alike to designate something which has a



James T. Ballard

"Gentlemen, this is no humbug!"

So said Dr. Warren, the surgeon, in 1846 after he had completed the first operation in which a general anesthetic was used. Morton, "the upstart dentist," who made the wild claim that he could make a patient insensible of pain, can be seen in the picture. He had won the first great victory over pain in discovering ether as an anesthetic.

very definite existence. There are certain experiences for which adequate cause, the changes from disease which usually precede pain, cannot be found. Pain under these circumstances has been called imaginary. But all pain is an experience, a part of consciousness. Therefore, anything which the sufferer calls pain, is pain, whether or not a physical cause can be found.

There may be, on the contrary, imaginary disease. Almost every medical student convinces himself that he has typhoid fever or tuberculosis or pneumonia or whatever else he may be studying. Such is rightly called imaginary disease. If, in the course of his imaginary disease, the patient experiences pain, however, that pain is as real as if he had the disease. In other words, every complaint of pain, if there is reason to believe that the patient is not intentionally deceiving, is an indication for treatment. If the patient has no physical cause for his pain, treatment must be directed to his mental and emotional side.

Mental vs. Physical Suffering

Pain as suffered by man is a complex experience, made up of more than the single element of physical discomfort. It is closely intertwined with the most fundamental and intense of emotions, fear. When the humblest earthworm from the garden is pricked with a pin, he recoils just as you or I would. But it is probable that his action is entirely what we call a reflex action, automatic, not associated with conscious effort. He may be said to feel pain in one sense; it is impossible to conceive of his feeling pain in the sense that you or I do.

With us there is memory of the past and thought of the future, plans, hopes, love—in short all the elements that make up the intellectual and spiritual superiority of man over the earthworm. Every one of these elements enters into each experience of pain, conditioning it, intensifying it, adding to physical suffering the enormous weight of mental suffering, the hideous specter of fear. And who shall say in any instance where the physical suffering ceases and the mental begins; or which is the more grievous burden to be borne?

Struggle to Control Pain

So far I have spoken only of the beneficent aspects of pain as an aid to the physician. I have presented a picture of the physician as the methodical, aloof man of science, searching coolly for the cause of pain. That is certainly one phase of his efforts to abolish pain. Therein he must occasionally be so apparently heartless as to cause pain that his efforts may succeed. Not infrequently it is his duty to permit the tortures of disease to continue for a little that he may better study the pain itself, reach his diagnosis with certainty, and arm himself efficiently.

There is, however, a time when pain ceases to be kind and becomes cruel, when it ceases to be a warning of danger and a guide to the searcher for the cause of disease, and becomes a torture only. This stage is reached when pain continues after diagnosis is complete and treatment has begun. We know then what danger is threatening the body; we need no further warning, no further guide, and yet pain continues.

Examples are frequent enough. The pain of pneumonia is of inestimable value in diagnosis, but when diagnosis is complete not only is it a hideous fact to the patient, but also a complicating and disturbing factor to the physician in his treatment. Pain leads to a surgical operation, but when the operation is complete, the pain that follows serves no useful purpose. Besides these instances, there is another type of pain which seems cruel only. Except in its initial stages, one can conceive of no useful function fulfilled by the terrible agony of childbirth.

When the physician is faced with the cruel, useless pain that makes up so much of life, his service seems as kind as in reality it is. Attempts to control pain long preceded the making use of pain in diagnosis; in fact, the history of medicine is marked by efforts to lessen pain or to abolish it entirely. The story of some of these efforts is interesting, particularly since the culminating success, the discovery of ether as an anesthetic, is an achievement of a countryman of ours within the lifetime, if not the memory, of a few who still survive.

Search to Lessen Pain

The search for means to lessen pain must have been one of the problems to which the dawn-man first applied his small brain. We know that the early Egyptians, Greeks, Incas, and Chinese had faith in certain substances and procedures to deaden pain. What these substances were, it is hard for us to learn; but there is little doubt that alcohol and perhaps opium were known in those distant centuries. Hemp, mandragora, mandrake—these are some of the names that have survived. Mechanical means such as cold and pressure, used now but little, were probably also employed. Opium has been known and used for thousands of years, but it has been only in the last century, of course, that its properties have been known accurately, that it could be separated into morphine and heroin and codeine and the like. But its total benefaction to sufferers can never be weighed or measured.

Today we have at our command a dozen or more substances, with countless modifica-

ON OCTOBER 16 1846 IN THIS ROOM THEN THE OPERATING THEATRE OF THE HOSPITAL
WAS GIVEN THE FIRST PUBLIC DEMONSTRATION OF ANAESTHESIA
TO THE EXTENT OF PRODUCING INSENSIBILITY TO PAIN DURING A SERIOUS SURGICAL OPERATION
SULPHURIC ETHER WAS ADMINISTERED BY WILLIAM THOMAS GREEN MORTON A BOSTON DENTIST
THE PATIENT WAS GILBERT ABBOTT THE OPERATION WAS THE REMOVAL OF A TUMOR UNDER THE JAW
THE SURGEON WAS JOHN COLLINS WARREN
THE PATIENT DECLARED THAT HE HAD FELT NO PAIN DURING THE OPERATION
AND WAS DISCHARGED WELL DECEMBER 7
KNOWLEDGE OF THIS DISCOVERY SPREAD FROM THIS ROOM THROUGHOUT THE CIVILIZED WORLD
AND A NEW ERA FOR SURGERY BEGAN

tions, which when skilfully applied control pain. These may roughly be grouped into three main classes: the opiates and minor hypnotics; the local anesthetics; and the general anesthetics. The first group of these, the opiates, of which the familiar morphine is an example—it is perhaps the most useful single drug, certainly the most useful for allaying pain—and the minor hypnotics, of which veronal may be mentioned, when taken into the body diminish the sensibility of the nervous system to pain.

Fred L. Fales

There is still preserved in the Massachusetts General Hospital, Boston, the room in which the first operation with the aid of ether was performed.

Local anesthetics, when injected so as to bathe the nerves that supply a part of the body, block off from consciousness the pain sensations that may be caused by injury or disease in that part. Thus, if one of these substances is injected in the area of the nerves that lead to a finger, the finger may be operated on or even amputated without the patient's being aware that anything has been done. Cocaine and drugs chemically related to it are the most common and most useful of these substances.

Pain Not Yet Controlled

The general anesthetics, ether, chloroform, and nitrous oxide gas, usually given by inhalation, abolish all sensation, producing a state of unconsciousness, an artificial sleep. With this wealth of aids at hand, rarely pain cannot be at least temporarily diminished, if not entirely abolished. But even so the search goes on for other aids. We have not yet reached the ideal. Each of the drugs we now use has its disadvantages, its limitations, its positive dangers. We have come far, but there are still times when pain proves too strong and cannot be relieved.

And how slowly we have come! Surgical operations have been performed for centuries, but only in the last seventy years have they been performed without pain. In an operating room now preserved in the Massachusetts General Hospital, Boston, are iron hooks firmly fixed to the wall. To these hooks the surgeon in the terrible pre-anesthetic days had to tie his patient with ropes while the operation was carried out. Horrible, and yet the kindest thing he knew. The operation must be done, the patient, thoroughly conscious, must be held quiet while the rapid work went on, and the quicker it was over, the better for everybody. Only those who have suffered some severe injury and perhaps mothers can even faintly imagine what that experience must have been.

Opium administered to the danger point and alcohol administered to the point of stupefaction were the only things that diminished at all the horrors of surgery in the days before ether and chloroform. What a different picture is now presented by the control of pain under the surgeon's knife! The story of

William Morton has been told often, but it is a story that bears repeating:

Discovery of Ether

October 16, 1846, should be among the most cherished dates in the records of humanity. On that day the pain of surgery was confounded. On the table in the operating room in the Massachusetts General Hospital, where hang the iron stanchions to which the suffering patient might be lashed, lay a boy with a tumor of the jaw. In the benches were gathered the students from the Harvard Medical School, and around the table, J. C. Warren, Hayward, Townsend, Bigelow, J. M. Warren, and Parkman, the surgical staff of the hospital, names then widely known, at least two of which are still revered today.

The staff was discussing the incredible claims of an upstart dentist to render a patient insensible to pain. They were mostly skeptical, incredulous; there was talk of humbug. There was a feeling of regret that the persistence and energy of the fellow Morton had made them yield to his demands for a public demonstration of the truth of his claims. Perhaps it was wrong to open the dignified doors of the old hospital to such a charlatan.

Morton's Claims Were Sound

As the hour passed when Morton should have appeared, the hostility increased, and the operation was about to be undertaken in the belief that the eminent staff had been hoodwinked. The door opened and in walked Morton with his clumsy apparatus, meeting a palpable atmosphere of opposition. However the agreement stood. The patient was anesthetized, the surgeon did his part, the patient awoke. Had he felt pain? Then came a tense interval until it became clear that a painless operation had been done. Dr. Warren, the chief, turned to his assembled staff: "Gentlemen, this is no humbug." Morton had offered to the world a priceless treasure.

The events that preceded this memorable occasion are of some interest. Anesthesia in surgery, like other great discoveries, did not come on the world suddenly. There were other men who had preceded Morton in the actual production of insensibility during surgical procedures by the use of the substances we use today.

Sir Humphrey Davy in 1799, forty-seven years before Morton, had discovered the anesthetic properties of nitrous oxide gas. He wrote: "As nitrous oxide, in its extensive operation, seems capable of destroying physical pain, it may probably be used with advantage in surgical operations." In 1818, Faraday made similar observations on ether.

Six years before Morton's demonstration, Crawford W. Long, a country practitioner of Georgia, whose claims to supplant Morton as the actual discoverer of anesthesia have caused bitter controversies, first performed an operation under ether. He did not, however, realize the magnificence of his accomplishment, nor did he make it known at all widely until the world was ringing with Morton's name.

On March 30, 1842, he first tried it successfully. Two years after Long's work, Horace Wells, of Hartford, Connecticut, a dentist, deliberately used nitrous oxide gas in the extraction of teeth and continued its use until an unfortunate demonstration before Dr. Warren at the Massachusetts General Hospital, in which the patient, incompletely anesthetized, suffered great pain, discouraged him so that he abandoned his efforts altogether.

The application of the anesthetic properties of chloroform to surgery followed closely on the heels of Morton's demonstration. In 1847, Sir James Simpson, a distinguished surgeon of Edinburgh, unsatisfied with ether, whose use he had witnessed, operated for the first time under chloroform. It is curious to note that the British origin of chloroform and the American origin of ether have determined until recent years the favorite anesthetic in the respective countries. Simpson was first to use both ether and chloroform during childbirth.

The development of cocaine and its derivatives for local anesthesia is a later story. The decade from 1874 to 1884 was the period of groping for local anesthetics corresponding to the ten years before Morton's discovery of ether. Since 1884 local anesthesia has become established and accepted.

Fred L. Fales

The Massachusetts General Hospital of the early nineteenth century, where in 1846 an obscure dentist carried through a demonstration which was to revolutionize surgery.

Later progress has consisted largely in the application of new combinations and new forms of administration of the drugs we already have. Nitrous oxide gas and oxygen gas alone, or combined with ether, the general anesthetics combined with the local anesthetics, and new methods of administering morphine and its relatives—all these mark advances toward the goal of the ideal anesthetic, which must be efficient and safe.

The development of so-called twilight sleep is a striking instance of our progress.

Pain and Character

And finally, if I may be so presumptuous as to attempt a small sermon, there is something to be said on the interrelation of pain and character. You are familiar with the two types of prolonged sufferers, the ever cheerful and self-forgetting and the ever complaining. Let me assure you that the former is magnificently in the majority. That fact alone makes the practice of medicine possible. Courage is one of the fundamentals of human character. If you were to stand with me by bedside after bedside and meet the smiles and cheerfulness under the handicaps of terrible agony you would realize poignantly the truth of these words.

Fred L. Fales

In the Boston Public Gardens stands one of the several monuments erected to Morton, discoverer of ether as an anesthetic.

To see a smile forced through lips drawn with pain and receive assurance that things are going well with the sufferer, to hear him inquire in the next breath for the health of some other, perhaps even of oneself, gives one pride in humanity. And it is not an uncommon experience.

It is so truly the usual experience, that many physicians and nurses fail in sympathy if their patient happens to be of the selfish and complaining type.

As I have already said, there are those by whom suffering is easily borne, and those to whom it seems unbearable. The latter, burdened by a particular type of nervous organization, find life harder than the former. But in the latter, as in the former, is found this courage of which I speak. It is not alone the physical reaction to pain that spells cowardice or courage; the bravest man will wince or groan. It is rather the reaction of the self to pain that counts. Those whom no pain can drive from care and thought for others, those are the true heroes. And those in whom pain intensifies self-centeredness, self-pity, self-appreciation—they are the cowards.

Physical abnegation of pain, the usual test of bravery, is more than often the result of spiritual bravery. Courage breeds courage. And selfishness breeds cowardice. Truly equanimity in the face of physical suffering is the most noble of mankind's potentialities. Out of it character is built. We have all seen that process. We have all in mind two or three life-long invalids we have known in pain year in and year out, growing year by year more gentle, more unselfish, stronger in spirit, and ever more lovable.

These are the salt of the earth.

And it behooves us fortunate ones who enjoy the great blessing of health so to set our feet that, should pain ever overtake us, we can step forward in this excellent companionship, if not blithely, at least calmly and with high courage.

You and I and Public Health

CORNELIA JAMES CANNON

THE longer we live the less certain we become that there is any such thing as private health. Public health has absorbed into its all-embracing grasp our private and particular healths. They have become blended into an indistinguishable whole which determines the health quotient of our community, but remains no longer our personal possession.

The old farmer, who refused to be excluded from a grange meeting merely because he was suffering from an attack of mumps, defended himself with the indignant protest, "Them's my mumps, ain't they?" He would meet with no understanding sympathy today. We would be unanimous in regarding him as a selfish individualist and act accordingly.

Citizens Must Perform 99% of Task

But health is not a thing that can be imposed on us from without. It is not something which our duly elected or appointed officers can compel us to cherish or even to partake of. We have a natural resistance to outer compulsion of any kind, and our numbers are too great to allow enforcement to have full sway against our will. The authorities who are charged with the responsibility of creating a healthy community by the making of healthy individuals have a herculean task unless we citizens do our share, which is 99 per cent. of the whole.

The younger members of this generation do not remember the anti-spitting campaign, initiated some twenty years ago in the vigorous attack on tuberculosis. That campaign gave insight into the final source of authority in any effective health measure. During a number of years the streets, the public places, the trains were placarded with appeals to us not to spit on the sidewalk or on floors in public places. Threats of dire penalty if we did were appended. The police were alert to detect infractions of the order, fines were imposed, recalcitrant offenders were imprisoned. The pursuit of incorrigible individualists went on for many months and even for years.

How is it today? Where are those signs which used to assault the eye everywhere? Who among the young people in our midst even knows there was such a campaign?

Who Enforced Anti-spitting Orders?

The thing was done. The only question of interest to us is who did it. It was certainly not the police. They could not have done it were they ten times as numerous. The placards did not do it. If that were possible, the propagandists would by now have placarded the world. No, we did it, you and I. The police, the health officers, the placards were but symbols. We, who had made the ruling through our machinery of health regulation, enforced it. We converted it from a transient compulsion into a part of the habit-training of a nation.

If we can accomplish so much in dealing with a single problem, is there any limit to what we can do if we work sympathetically with those who have the wisdom to lead us to better ways of living together? Experience indicates that the limit lies in our own hands. But what do we actually do? We select health agents in every civilized community, and then paralyze their activity and throw away the community money we have invested in their salaries by ignoring or passively opposing their efforts.

For instance, how do we react to a scarlet fever sign nailed to the wall of a building? We are apt to shudder away from the house, and then put the whole matter out of our minds. Yet that sign is placed there for a purpose we cannot afford to ignore. It is not designed to inform the family concerned that there is a scarlet fever patient in the house. The family knows it all too well. Nor is it to serve as a reminder to the health authorities that a contagious disease has appeared in a certain locality. The health department not only placed the sign on the

house but has the case recorded in its office and keeps in touch with it through a system of follow-up inspections and disinfections, school notifications and examinations.

That sign is put there to inform you and me that we have a definite responsibility in connection with the occurrence of this disease in our vicinity. It says to each one of us that a menace to our health has appeared, and that we must keep watch in our neighborhood, as our busy health employees who are following case after case throughout the community cannot do, to see that the health regulations we have made for our joint protection are not infringed. The printed cardboard is at the same time a signal of danger and an appeal for our participation in the great task of safeguarding a nation's health.

Disease Is no Respecter of Persons

These responsibilities for the health of the community are at every hand all the time. But a mixture of irresponsibility and timidity deters us from functioning as we might. We are inclined to say that in a complicated civilization like ours authority must be delegated, that we have a corps of men who have nothing to do except look after the community health, and that we have our own lives to look after and that is care enough. This might afford us a respectable alibi if, first, in any community we employed a large enough corps of workers to get along without participating citizens, or if, secondly, attending to our own lives could be done without relation to other people's lives. But our health workers cannot cover the community, and no home can offer us immunity from the dangers common to all. Disease is no respecter of persons. A germ does not discriminate between us and others. It would just as soon lay low the possessor of a great estate

as the dweller in the meanest city tenement.

We are all well or ill together, and your health is my health. How then can we take our important part in safeguarding our private health by fostering the public health?

How Does Your Town Rate on These Questions?

Each citizen must primarily regard himself as an unofficial member of his local board of health. He will instantly have his eyes opened to a multitude of interesting problems and possibilities. He will wish to know the answers to questions such as these:

What is the method of sewage disposal in our town?

How does our water supply rank with that of other communities of the same size?

What is our typhoid rate?

How is cleanliness of markets and bakeries assured?

Do flies have access to our food before it reaches us?

What control is there of refuse from stables, hen yards, and similar places?

Is our garbage disposal a matter of pride or shame to our town?

Is it safe for our children to have their hair cut in our barber shops?

Are our back yards 20 or 80 per cent. unlovely?

Can any individual who wishes take infants to board?

What efforts are we making to control the plague of flies and mosquitoes?

What oversight does our health department have of undertakers?

Is our ambulance service adequate?

How many babies were born blind in the town last year?

What does our community do to prevent deafness, blindness, and tuberculosis?

How does it care for the victims?

What do we do for our feebleminded?

How dirty does our community allow its milk supply to be?

What is our contagious disease record as compared with that of other adjoining towns?

What are we doing to protect our school children from epidemics of the children's diseases?

Are other parents afforded the opportunity to keep their children's teeth in as good condition as your children's and mine have been kept?

How do we keep our working children from undertaking jobs for which they are physically unfit?

No citizen would be long satisfied merely to ask such questions. He would soon insist on a satisfactory answer. And in getting the answer he would shortly see where his responsibility came in. He would realize that health protection costs money and that the community and not the health department is the source of the money. He would also realize that regulation is not enough. He would see that no health measure can be very much in advance of the health conviction of the majority. His opportunity and that of his fellows would become clear to him.

Officials Need Backing

Once the citizens understand the helplessness of the health official without their support, they can give that financial and moral backing before which administrative and enforcement difficulties disappear like snow drifts before a rotary plow.

A town can be as healthy as its citizens want it to be and are willing to pay to have it kept healthy.

Advances in public health are instantly reflected in the well being of the individual, who is often inclined to regard his health as an indication of his virtue or his general superiority without paying tribute to the enlightened policies of the medical leaders who have dragged our communities into a state of health, in most cases, far better than they deserve.

The opportunity lies before us, as understanding citizens, to advance the individual well being by advancing that of the state, and in so doing better our teachers, by substituting as only an intelligent and participating public can do for absence of disease, the presence of the vigorous energy of health.

CREED OF JACKSON COUNTY, KANSAS, PUBLIC HEALTH CLUB

I believe in good health, the greatest blessing on earth, creator of happy homes, useful schools, richer states, and greater nations; and in sanitation, the stepping stone to it, which was conceived by honest doctors, told to loving mothers, who taught it to their growing children, and the results of same are now known to all.

I believe in plenty of sunlight, fresh air, pure food, pure water, the proper exercise and care of my body, especially of my teeth and eyes, the destruction of germs, the swatting of flies, also their breeding places, the batting of rats, and the eradication of any other animal or plant which interferes with the life or health of man.

I believe in the public school, the children who attend it, the teachers who teach them, and will see to it that the condition of the schoolhouse and surroundings are always in first class shape, that the out buildings are of the best possible variety, and that the well is safe from surface pollution.

I believe in the laws and regulations of health boards, and am ready to assist in the enforcement of same in order to prevent sickness and death in my or my neighbor's family.

All this I firmly believe now, and I will believe more when I am shown that some new measure will prevent disease, which I now know can be prevented.

The Skin and Cosmetics

JOSEPH V. KLAUDER

COSMETICS and skin paints are of remote antiquity, but their use in different nations varies according to the degree of civilization and the sense of beauty developed by those nations. While among certain Oriental peoples dark blue rings around the eyes, with yellow lips and nails, pass for beautiful, the European prizes only a white skin with a delicate tinge of red. Italian ladies in the middle ages used the dark red juice of the fruit of the deadly nightshade as a paint, hence the name bella donna, i. e., beautiful lady.

The best face paint

Government census figures show that during a recent twelve-month period the women of the United States spent for face paint, including "beauty creams," skin bleaches, face lotions and cosmetic powders, a sum not less than $50,000,000.

Four Times as Many Paint as in 1914

In the same period we exported to other countries about $6,000,000 worth of such beautifying materials, the total including 3,652,604 pounds of toilet powders. England obtained from the United States 2,071,263 pounds of face creams and rouges in 1922.

The extraordinary recent increase in the use of face paint by the women of this country is illustrated by the fact that in eight years the production of cosmetics in the United States has been almost quadrupled. In 1914, according to census figures, it represented a total value of $18,000,000, at manufacturers' prices; in 1922 it was about $70,000,000.

There are many cosmetics which are harmless, for example: cold cream, vanishing cream, talcum powder, rice powder and the innumerable emolient lotions and jellies such as are used for chapped hands; and indeed rouge, provided it does not contain vermilion, a sulphide of mercury, the use of which is not to be recommended.

However, the red color of most rouges is due to carmine, a relatively harmless pigment of crimson color obtained from cochineal.

Poisonous Cosmetics on Market

On the other hand, there are innumerable cosmetics—skin bleaches, beauty creams and face lotions—which are not only decidedly harmful to the skin, but which imperil health. Many of these preparations, sold with extravagant claims, a fancy name and a fancy container for an extravagant price, contain one or the other of the following poisonous metals: lead, antimony, mercury, bismuth. Of these ingredients, lead is the most dangerous. Certain salts of lead have for years been responsible for cases of chronic lead poisoning, due to their employment in cosmetics.

Poisons, recognized as such, are not allowed to be sold, save under the most rigid restrictions. But in the form of cosmetics they are freely marketed everywhere. Commonly, the manufacturers advertise them as "harmless" and the purchaser accepts that statement in full faith. It means nothing, however. Many of the preparations thus advertised have been found, on chemical analysis, to be the worst.

One well-advertised toilet cream sold for the alleged purpose of "Beautifying the Complexion and Rendering the Skin Soft and Velvety" contained 42.5 per cent. of lead carbonate.

"The indiscriminate sale of preparations of this sort is not merely a menace to the public health but a commentary on the laxity of our laws. Any concern, responsible or irresponsible, can sell for the indiscriminate use of the girls and women of the country, a cosmetic loaded down with poisonous ingredients, and it is not required to give any hint as to the potential dangers nor even to declare the presence of the poison." [1]

1. The Journal of the American Medical Association, April 7, 1923, p. 1022.

The aphorism, "do not believe everything you read," applies with particular force to the extravagant and unjustified claims in the advertisements of certain cosmetics. The cosmetic labeled as a "skin food," which "nourishes by absorption," and "builds a firm, healthy skin," misrepresents the facts. In the strict sense of the word there is no substance which, when applied externally, acts as a skin food.

A Healthy Skin Means a Healthy Body

The skin is an intimate part of the whole human organism and, as such, is nourished by blood and lymphatic vessels. The health of the skin is, in a large measure, intimately associated with the health of the individual. Again, it is very doubtful if there is any preparation which, when applied to the skin, will help wrinkles to any degree; nevertheless there are many hundreds of cosmetics which are sold for the express purpose of removing wrinkles. Many of these contain cheap and relatively innocuous ingredients, such as in one case in which Epsom salt, perfumed and dyed pink, sells under the name of wrinkle remover for an exorbitant price.

Injection of Wax to Remove Wrinkles Is Dangerous

It may here be stated, with considerable emphasis, that the injection of wax beneath the skin to eradicate wrinkles is a very dangerous procedure since the skin so injected may break down, forming ulcerations; this is a very serious matter.

The use of the x-ray in the treatment of certain skin diseases, when administered by one qualified to employ it, is a valuable agent. In the hands of those not qualified it becomes a very dangerous agent. The x-ray should practically never be employed to remove superfluous hairs. When employed for this purpose it may permanently damage the skin.

Many Hair Dyes Contain Poison

Many hair dyes contain one or the other of the following: potassium cyanide, lead, silver nitrate, mercury. These are dangerous because of the metals they contain. Others contain a dye known as paraphenylendiamin which may severely irritate the scalp, causing an inflammation of the skin.

There are, however, harmless hair dyes such as one composed of the juice of black walnut shells, "henna" and others. It is interesting to note here that "henna" is the Persian name for a small shrub found in the East Indies, Persia, the Levant and along the African coast of the Mediterranean. In the East it has always been in vogue for dyeing red the nails of women, the beards of men and the manes of horses. Recently it has been in vogue in this country for dyeing hair.

Boric Acid Good Remedy

The safest and most effective home remedy that can be applied to an inflamed skin is a preparation found in most medicine cabinets, boric acid. It is applied in a saturated solution, preferably in the form of a compress or in ointment form. It is effective in allaying itching and in soothing all inflammations of the skin, such as burns, sunburn, chafing and the severe inflammations of the type exemplified by ivy poisoning. It is pure and harmless.

Soap and water are always irritating to an inflamed skin and should be avoided. The ever-ready suggestions of others regarding the use of concoctions of innumerable substances in the treatment of skin diseases, if carried out, invariably do more harm than good.

There is much nonsense spoken and written about soaps. It is doubtful if soap has any particular virtue other than for cleansing purposes, notwithstanding claims made for medicated soaps, antiseptic soaps and soaps to beautify the complexion. Strong soaps—those high in alkali content—by reason of the irritation they produce may cause ill effects. A soap containing little or no free alkali is an ideal one for toilet purposes. Excessive use of soap may be harmful since it causes an abnormal dryness of the skin which predisposes to certain skin disorders.

Too Little and too Frequent Bathing

Personal hygiene is very important both directly and indirectly as a factor in the production of skin diseases.

Excessive or insufficient bathing often produces skin diseases. The temperature of the water is important; excessive use of hot baths is in some instances harmful.

The lack of bathing is more frequently of harm than excessive bathing, for it predisposes to all parasitic skin diseases, pus infections of the skin, and some types of eczema.

Poor air and the lack of sunshine are indirectly factors in the causation of skin diseases. They probably produce their effect through the lowering of the general vitality, rather than by direct local action. In crowded tenements of a large city, the lack of fresh air plays a part in all diseases, including those peculiar to the skin.

Sun baths should be advocated not only as a beneficial agent to the skin but as an agent which promotes the general health of the individual. As the actinic rays in light, particularly sunlight, are essential to sustain life in the vegetable and animal kingdom, so are they to the human organism.

Actinic rays are present in large quantities in sunlight at high altitudes of several thousand feet, and at the seashore. At ordinary levels of the earth's surface they are present only to a very small degree because of the dust particles and moisture in the air, which filter them out of the sun's rays and absorb them.

The best evidence of this is to be observed in the beneficial health effects of mountain air, which is relatively free from dust particles. This also serves to explain why one sunburns so readily at the seashore and at high altitudes.

The picture of the town-dweller, particularly in the tenement districts, is a familiar one. Here the sunlight, even though its luminous rays can gain entrance to the room, is bereft of its chief power against disease because dust-charged atmosphere absorbs the actinic rays.

Certain Trades Hard on Hands

Important in relation to the general cause of skin diseases is individual susceptibility. For example, of the many persons exposed to poison ivy, only a few develop a severe inflammation of the skin. This analogy can be carried further to include a large number of other plants, and indeed flowers, fruits, vegetables, dyes, drugs, chemicals and a host of other substances.

On the other hand, such susceptibility may develop after prolonged contact with these substances. Accordingly, different substances employed in almost all the trades and occupations produce skin diseases of the hands of some individuals engaged in them.

Proper care of the hands becomes an important matter to men and women pursuing various trades and occupations. It is desirable, whenever possible, to wear gloves when at work and to avoid unnecessary exposure to any irritating substance; to avoid the use of very strong soap for cleansing purposes and to take means to prevent chapped hands.

Clothing is sometimes a factor in the causation of skin diseases through local irritation, when the material used next to the skin is either rough or poorly dyed. Again, when too warmly clad, the skin becomes tender, and therefore more liable to external and internal irritation. When the skin is very tender, it is better not to wear woolen clothing next to the skin; cotton, linen or silk is preferable.

Cancer involves the skin as it does other organs, although it is unusual in those below middle age. It may involve any part of the skin; its common site, however, is the face including the lips and ears. Cancer of the skin is, as a general rule, much slower in progress and more amenable to treatment than internal cancer. It begins as a small "sore" which is non-painful and bleeds easily. It is usually covered with a crust. Less frequently it first appears as a hard lump in the skin. Cancer of the breast, particularly in women, may also appear as a hard lump beneath the skin of the breast.

In either event early recognition and early treatment are of vital importance. It cannot be too strongly emphasized that any "sore" on the skin of a person past middle age which bleeds easily and does not heal, or any persistent, non-painful lump, particularly in the breast of women, should arouse suspicion of cancer and should be promptly reported to the family physician.

Skin Largest Organ of Body

The skin is one of the vital organs, indeed the largest organ in the body, performing functions essential to health and life. It is closely associated with underlying structures, thus serving as a protective covering. By its situation it is brought into intimate relation with the external world and is therefore exposed to more forms of irritation than any other organ.

It is an elastic and sensitive organ of great complexity, varying greatly in different conditions of age, health, sex, race and climate and varying also in characteristics exhibited in different localities on the same individual. For

example, in color there is a wide range between the black skin of the Negro, the fair skin of the blonde and the rosy pink of the infant's palm.

In pliability and thickness the skin varies also, being delicate and lax over the eyelids and lips. In certain regions, such as the palms and soles, it is much thicker and more firmly attached.

The dark skin of tropical races is due to pigment, the primary purpose of which is to afford protection from the actinic rays of the tropical sun. This illustrates reaction to environment, one of the resourceful ways of nature in affording protection.

Eight Miles of Sweat Glands in Skin

The skin is traversed by superficial and deep furrows, which vary in arrangement and size according to their situation. Upon the finger tips they form oval patterns of concentric lines which, owing to the fact that no two individuals have precisely the same pattern, serve as a valuable means of identification. Between these fine furrows are ridges dotted with numerous depressions—pores representing the opening of sweat glands. The total number of sweat glands in the skin is estimated to be between two million and three million and the total length of these glands to be eight miles. These figures serve to give an approximate idea of their great physiological importance.

The skin is divided anatomically into three general layers. In these layers are found glands that secrete sweat and sebum, an oily substance which produces the distasteful "shiny nose" and the powder puff. In these layers are also found blood vessels, lymph vessels, muscles, pigment, nerves, and the appendages of the skin—the hairs and nails.

The skin, through its various component parts, performs many physiological functions vital to life. Most important of these are protection, heat regulation, secretion, sensation, and to a very small degree respiration. The skin is not merely a protective membrane in which the structures of the body are confined, but is a living organ comparable in importance to the liver, kidneys, and other similar organs.

Skin Is Mirror of General Health

The skin is, in a large measure, a mirror which reflects the general health of the individual. A healthy skin is, therefore, intimately associated with good health of the individual, which implies moderation in eating and drinking, proper hygiene of the mouth, sufficient exercise, outdoor life, recreation, relaxation, the avoidance of being overweight, and the elimination of viciousness in life.

For those who wish to attain a good complexion without the aid of rouge and powder, no better advice can be given than attention to these measures which imply good health of the individual.

Cultivating Health on the Farm

C. M. SIEVER

PROGRESS in sanitation in most rural districts has been much slower than it has been in the cities. This is manifest not only in a higher sick rate, but also in a general lack of cleanliness and comfort, which in this age should be enjoyed in the rural community as well as elsewhere.

The main reason is the lack of a system of taking information to the people. The masses have not had an opportunity to learn the good which might be accomplished if more interest were taken in sanitary matters.

In order that the best health work may be possible, the state should be divided into districts to be placed under health officers; each officer can then become acquainted with the territory and people he is to serve. The unit should be the county, and the health officer's headquarters should be in the court house where all the other county officers are located.

Favors per Capita Health Tax

The health officer should be chosen, not for his political faith, but on account of his knowledge of hygiene and sanitation, and he should be kept in office as long as he gives good service. The funds necessary to carry on this work should be raised by a fixed per capita tax, which in an ordinary county of 20,000 persons should be at least fifty cents apiece. This would make it possible to employ a nurse and office clerk and meet other needed expenses.

In the county another division should be made for health educational purposes; this is the school district. Each school district should be the center of the community for demonstrations and the giving out of health knowledge. The well, toilets, and general condition and sanitation of the school yard should be the best. The heat and light of the building should be as nearly perfect as possible so that each home in the district may be modeled after it.

Full Time Health Officer Needed

There can be no doubt that many diseases can be prevented, not only the contagious types, but nearly all diseases.

The human body is in one way similar to any piece of machinery. It must be given proper fuel in proper amounts and protected from all harmful outside influences. It is well known that a machine will not last long if it is not properly looked after. For this reason the owners of fine machinery find it cheaper to employ the most skilled engineers at high prices than to trust it to unskilled hands at cheaper rates. Just so the human body needs looking after, and it should be done by men who are qualified and who are watching and studying the movements of the machinery all the time.

This does not mean that all the work need be done by the health officer, but it does mean that the health officer must be on full time, that he may direct the work and see that it is all done. It means further that in the near future all physicians will be devoting more time to the prevention of disease instead of to the attempt to cure it.

Health Officer and Doctor Must Work Together

The full time health officer will not in the least interfere with the family physician's work; in fact, he will increase it. In many ways the physician and the health officer can work together. The health officer should always be ready to assist the practicing physician. He can aid in laboratory work, perhaps sometimes in arriving at a correct physical diagnosis, and in many other ways work with the family physician to the best interest of all concerned.

The health officer who cannot get along with the physicians of his district cannot be successful, neither can a physician who has a disposition to oppose and to neglect compliance with the health laws and regulations. The people are becoming so well informed that they will not tolerate shiftless work. More and more they are coming to insist that physicians comply with the laws.

Keeping the Health Officer Busy

Some persons, even health officers, wonder what a full time health officer does to occupy all his time. Some believe that their county would be too small to make use of such a health officer, and others think that it would cost too much.

What are the real facts in the case?

What could a full time district health officer do in any county?

There are so few things he could not do pertaining to the health of his district that space

does not permit the mention of all. He would be to his district what the family physician is to the individual family. He should therefore know personally every family; he should know the conditions under which they live, and the sanitary conditions of their homes. He should know the heating, lighting and ventilation of all the schoolhouses, of all the churches and other buildings where congregations gather, and see to it that they are kept in perfect condition.

His office should always be open for the giving out of information along all lines regarding public health, and, while he should not prescribe any remedy or treatment for disease, he should feel perfectly free to give advice that would prevent disease in his community.

There is not a school or church janitor who does not need and who would not appreciate the advice of a health officer, given in the proper spirit, with regard to the heating and ventilating of his building. There is not a school teacher who would not be eager to do more to promote the general health and sanitation of her district if she knew how. There is not a mother who would not be glad to save her baby as well as herself much worry and work by having some minor physical defect of her baby corrected, if she knew what the trouble was. I believe that there are few persons in any community who would not, under a well regulated health organization, do all in their power to promote its activities and development.

Will Save the County Money

A county with a population of 15,000 or 20,000 is not too small for a full time health officer.

The United States and other governments find that it pays to keep one medical man for every four or five hundred men in their armies—and the soldiers are men who have been carefully examined before they were taken in, men who are in good health and under conditions that can be controlled.

Yet some say that a health officer to a population of 20,000 is too much, that he will have nothing to do but to draw his salary. The right kind of health officer can find all that he can possibly do and will save many times his salary if he looks after 10,000 persons and keeps them well. A few cases of typhoid fever prevented, if figured from a financial standpoint, would pay the salary of the health officer, and, added to this, the cost of several funerals; if a severe epidemic should strike a county, several times the cost of maintaining the health officer would be saved, and besides many sorrowing hearts, a vast amount of trouble, and the loss of the earning capacity of those who die before the years of their expectancy. Typhoid is only a sample of a too common disease that can be prevented. Other diseases are just as bad, such as tuberculosis.

Full time health officers must come in every county of sufficient size. Counties with small population should unite and form health districts, so that each county in the United States will have the benefit of a full time health administrator. When this time arrives, a great advance will have been made in the prevention of diseases.

Sanitation in the rural district must be carried out in as scientific a way as in the city, if the same results are to be expected. The fact is, the results should be better if the same care is observed in the administration of sanitary laws.

It cannot be expected that much progress will be made until some system of education in health subjects can be carried to the rural homes. This education must be by practical demonstrations and scientific instruction. The rural citizen must be made to see that it is not only a comfort to his family, but also that it is a paying proposition to keep well. Pertinent cases should be brought to his attention.

Farmer Needs Health Instruction

A short time ago two sons of a leading farmer were taken sick with infantile paralysis. One died within a few days; the other still lives, but is completely paralyzed below the waist. A survey of that farm showed that the barn yard contained all kinds of farm animals, including some hogs that spent most of their time in the shade by the house. Flies were found in great numbers. Judging from the best knowledge we have, the flies may have carried the disease. Conditions on many farms, even if not dangerous to health, are unsightly, and should not be tolerated by self respecting families.

The laws of health are simple, but they must be well learned. A little knowledge is often dangerous.

One good citizen of whom I heard decided to construct a sewer for his home. He made the proper connections in the house and placed the septic tank to the rear of his premises, but in placing the pipe outlet from the house to the tank he did not take into consideration a well from which all the drinking water came, and ran the line within a few feet of it. The sewer pipe sprung a leak. The mother of the household contracted typhoid fever, and after several weeks' sickness died, leaving several young children.

This man tried to do the right thing for his family, but because of a lack of the knowledge of sanitation he caused misery instead of happiness.

The Nobel Prizes in Medicine

ALFRED BERNARD NOBEL, donor of the Nobel prizes, was born in Stockholm in 1833. He was the inventor of a gasometer and other apparatus, but his greatest discovery was the explosive, dynamite, announced in 1866. From the manufacture of dynamite and his inventions of smokeless powder and artificial rubber he accumulated a large fortune.

At his death he bequeathed $9,000,000 to provide for five prizes of $40,000 each, given annually for distinctive work in physics, chemistry, medicine, literature and for the promotion of peace. The prize in medicine, with which we are chiefly concerned, is awarded by the Caroline Institute in Stockholm.

The winners of the Nobel prizes in medicine constitute a notable list, representing recognition of the value of scientific discovery for the benefit of mankind.

Diphtheria Antitoxin

In 1901, the prize was awarded to Emil Adolf von Behring, professor of hygiene in the University of Marburg, Prussia, noted particularly for his work on diphtheria antitoxin, a method now recognized as a specific life-saving treatment for this disease.

The next award, in 1902, was to Sir Ronald Ross, professor of tropical medicine in the University College of Liverpool, England, discoverer of the fact that the anopheles mosquito transmits malaria and deviser of methods for destroying mosquitoes, which have been put into effect all over the world. He was an extraordinary mathematician, one of the first to apply the theory of probabilities to the statistical studies of epidemics, thus founding a new science—pathometry. His autobiography, recently published, is a fascinating account of an interesting and varied life.

Ivan Petrovic Pawlow

Robert Koch

Light Treatment Pioneer

In 1903, the Nobel prize went to Niels Ryberg Finsen, professor of medicine in Copenhagen, Denmark. Finsen was a pioneer in the use of light in the treatment of disease, and although many of the theories which he advanced have not been generally sustained, light treatment today holds a place of increasing importance in controlling disease. Indeed, one of the great discoveries of the past few years has been the relationship of light to the cause and cure of rickets.

Ivan Petrovic Pawlow, professor of physiology in a military academy of medicine, Petrograd, Russia, was the recipient of the Nobel prize for 1904. The contributions of Pawlow to modern physiology have been so numerous as to prevent more than a brief mention. He devised methods of operating on animals so as to study intimately

the process of digestion. He established the existence of enzymes or ferments in the body juices. More recently he has concerned himself with the study of nervous and mental phenomena as associated with sleep and emotion.

Discovers Tuberculosis Germ

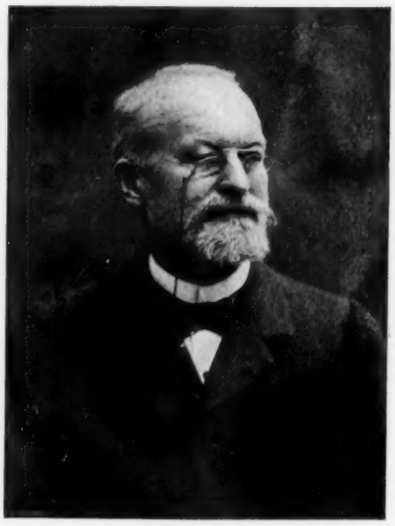
Robert Koch, Berlin, discoverer of the organism which causes tuberculosis, received the Nobel prize in 1905. His name is, moreover, associated with many discoveries in the field of bacteriology. When Koch demonstrated his method of growing bacteria outside the body at the International Medical Congress in London in 1881, Pasteur, who was present, rushed forward with the exclamation: "C'est un grand progrès!"

Koch also established definite rules to indicate whether or not an organism was actually the cause of a disease. In 1885, he was appointed professor of hygiene and bacteriology in the University of Berlin; great scientists from all over the world studied in his laboratories.

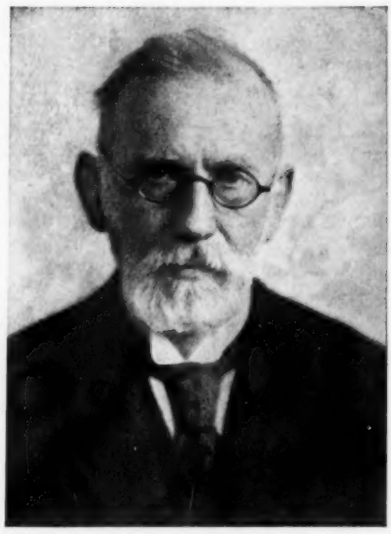
New Light on Nervous System

In 1906, the Nobel prize was divided between Professors Ramón y Cajal and Camillo Golgi. Both these workers are notable for their contributions to the minute anatomy of the nervous system. They devised new methods of staining the tissues of the body so that they might be better studied under the microscope. Cajal was able to show the way in which the terminals of the nerves ramify into the brain and spinal cord; in fact, Cajal compared this to the network of lichens and mosses in a tropical forest.

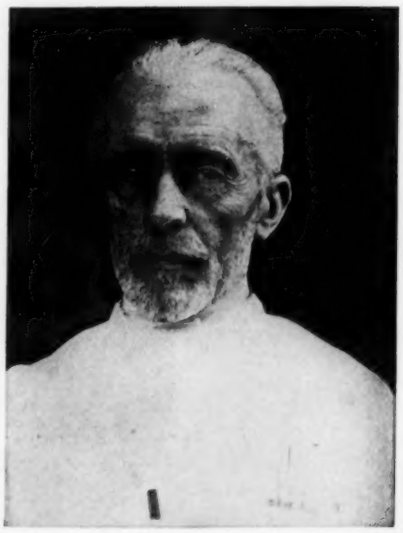
Golgi of Pavia, Italy, devised a stain of silver nitrate in 1873 by which he was able to demonstrate the various types of nerve cells and the way in which the filaments spread from them.



Alphonse Laveran



Paul Ehrlich



Theodor Kocher

Completing the awards for work on malaria, the Nobel prize for 1907 was given to Alphonse Laveran of Paris, graduate of Strassburg in 1867. In 1880, while serving as an army surgeon in Algeria, he described the organism responsible for malaria. Furthermore, he contributed many other studies on malaria and tropical diseases, as well as volumes on military medicine and hygiene.

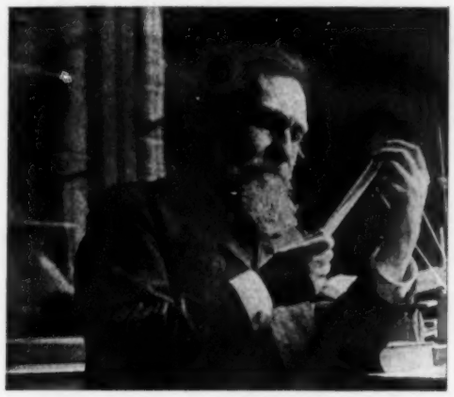
Sir Ronald Ross was ultimately able to demonstrate the way in which malaria is transmitted and its method of control through the work of Laveran, since he found the plasmodium which causes malaria, described by Laveran, in the stomach walls of mosquitoes which had fed on the blood of patients with malaria.

In 1908, the prize was divided between Drs. Paul Ehrlich of Berlin and Professor Elie Metchnikoff of the Pasteur Institute of Paris.

Discoverer of "606"

Paul Ehrlich was born in Silesia, Germany, in 1854, and became an assistant in Koch's Institute in 1890. Ehrlich is particularly noted for his experiments with dyestuffs, and the staining of tissues, as well as for diagnostic researches which he elaborated, but most of all for the discovery in 1910 of the preparation known as salvarsan, arsphenamin, or 606, used in the treatment of syphilis. He is credited also with being the founder of scientific study of the blood in various diseases. His many researches would occupy an entire volume in themselves. Garrison says that he did the most effective work since Pasteur and Koch in the study of infectious diseases, and added new territory to the domain of pharmacology and the treatment of disease by his genius for research.

Metchnikoff, an eminent Russian biologist, was the elaborator of the theory as to the way in which the body protects itself against disease. This theory led eventually to the treatment of diseases by vaccines. Moreover, his many investigations in biology, and especially his theories as to the



Elie Metchnikoff

effect of lactic acid on bacteria in counteracting intestinal poisoning, thus prolonging life, attracted world-wide attention.

First to Remove Thyroid Gland

In 1909, Dr. Theodor Kocher of Bern, Switzerland, noted for his pioneer researches in surgery, and particularly for having been the first to remove the thyroid gland in cases of goiter, was the recipient of the prize. The thyroid operation was described in 1878. Kocher is described as a slow, careful, precise and an absolutely skilful operator, a typical scientific surgeon, who obtains the most complete possible history of his patients before beginning an operation, and with whom success is an almost foregone conclusion.

Dr. Albrecht Kossel, professor of physiology in Heidelberg University, Germany, awarded the prize in 1910, did fundamental research on the chemistry and biology of the cell, the unit of which the body is constructed. He is also noted widely for his investigations on the chemistry of digestion and the way in which the body disposes of its food.

The prize went for the second time to a Scandinavian country in 1911—to Allvar Gullstrand, professor of diseases of the eye in Upsala University.

The award was for his mathematical investigation of dioptrics, or the science of the refraction of light through the transparent portions of the living eye. He had, however, previously done much work of great practical importance in the examining of diseased eyes. In 1892, he introduced a photographic method of locating a paralyzed muscle in the eye. He also devised numerous instruments which are of great practical use in the study of ocular movements and in the fitting of glasses.

Allvar Gullstrand

In 1912, the prize came for the first time to the United States, going to Dr. Alexis Carrel of the Rockefeller Institute for Medical Research, New York.

Dr. Carrel was a native of France, who came to America in 1905. He invented methods of sewing blood vessels. He successfully transplanted organs from one animal to another, and he studied the growth of the individual cell, becoming able finally to cause cellular tissue to grow outside the body. During the World War, he did work on antiseptic substances of use in the treatment of wounds.

Professor Charles Richet, who received the prize in 1913, was professor of physiology in the Paris faculty. Since 1878, his contributions have covered all of the various phases of the body's action in health and disease. Some of his best fundamental work, for example, concerns the phenomenon known as anaphylaxis or the special sensitivity of the body to various substances. He also produced a dictionary of physiology, which represented the complete knowledge of the subject.

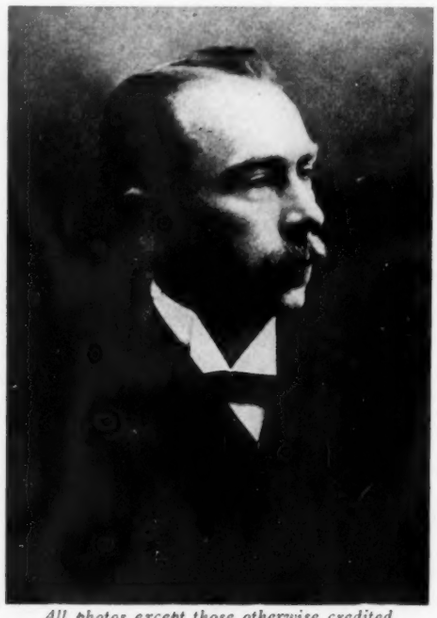
Contributes Data on Ear

In 1914, the last Nobel prize to be awarded before the great World War was conferred on Dr. Robert Bárány of Vienna, particularly for great advances

Robert Bárány

in the diagnosis and treatment of diseases of the ear. His work was concerned chiefly with vertigo, or dizziness, resulting from changes

in the normal condition of the ear, and in methods of distinguishing this type of vertigo from that caused by changes in the cerebellum at the back of the brain, from epilepsy or other conditions.



All photos except those otherwise credited, courtesy W. B. Saunders Co.

Jules Bordet

Dr. Bárány introduced a number of ingenious tests, as, for example, the causing of oscillation of the eye—called nystagmus—by placing cold or warm water in the external ear, or by having the patient try to point out an object with his eyes shut, after having previously touched it. Dr. Bárány had many interesting experiences during the war, being confined for a time in a Russian prison. He is now at the University of Upsala.

The ending of the war brought about a renewal of the conferring of the Nobel prizes.

Finds Basis for Wassermann Test

The prize for 1919 went to Dr. Jules Bordet of Brussels, director of the Pasteur Institute at that place. Bordet had been a pioneer in the study of the blood, and particularly in the reaction of the body to infections. Working with Octave Gengou in 1900, he discovered a reaction in the blood, which is known as the fixation of the complement and which is the basis of the well-known Wassermann test for syphilis. He also discovered a germ which is generally accepted as the cause of whooping cough.

In 1920, the recipient was Professor August Krogh of Copenhagen, Denmark, who had contributed especially to our knowledge of the way in which the blood is circulated through the finest terminal endings of the blood vessels—called the capillaries.

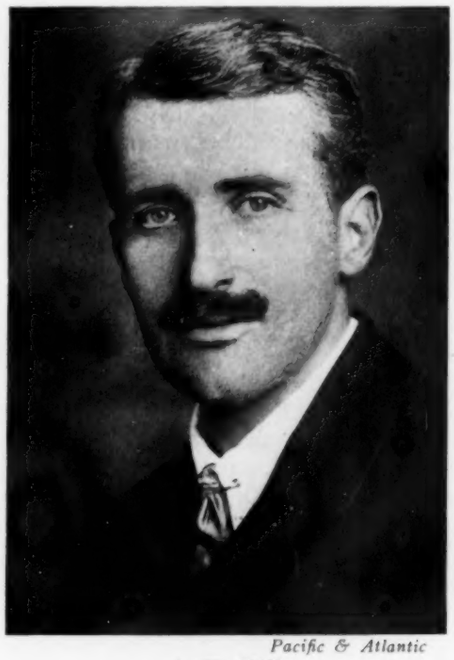
No prize was awarded in 1921, but announcement has recently been made of the awards for 1922 and 1923.

The prize for 1922 is given jointly to Professor A. V. Hill of London and to Professor Meyerhof of the University of Kiel.

1922-23 Prizes Recently Announced

Professor A. V. Hill is a physiologist who has not been graduated in medicine; this is true also of some of the previous recipients of the prize. Though not physicians, they have done excellent research in the fundamental medical sciences. Professor Hill's researches are of the technical laboratory character, which are not in general especially attractive to the medical student. He first made exact measurements of the amount of heat produced when a muscle contracts, and demonstrated the exact relation between the quantity of heat produced and the length of the fiber of the contracting muscles. This, of course, provided the basis for setting down rules for explaining how the heart, for instance, can adapt itself to disease conditions and how the heart compensates for weakness and for changes in the circulation in various diseases.

He also studied the chemical changes which take place in muscles during their work. He found that the use of oxygen is not necessary to permit muscles to contract, but that it is necessary for the muscle to recover from its work. Muscular capacity will soon fail unless oxygen



Pacific & Atlantic

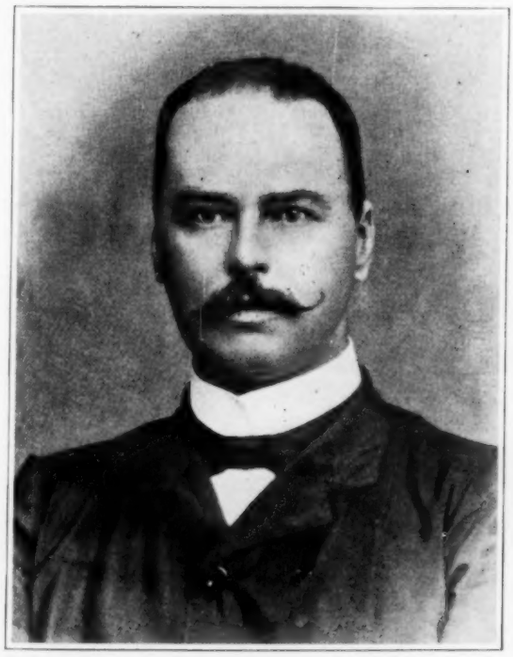
A. V. Hill

is available for oxidizing the lactic acid, which develops when the muscles contract and which furnishes energy for putting the muscle into condition so that it can contract again. As Professor Hill puts it, during extreme efforts, the body can work at a pace far in excess of the oxygen supplied, so that the muscle goes into debt for its oxygen during violent exertion.

The extent to which the debt can be incurred depends on the amount of lactic acid which can accumulate without affecting the muscles' contraction.

Professor Otto Meyerhof has done investigative work along the same line as that of Professor Hill. Meyerhof showed that the lactic acid which develops in the muscles results from the breaking down of glycogen, which is stored in the muscle, and which comes from sugar that is taken into the body. When the muscle recovers from its work, between one sixth and one fourth of the lactic acid is oxidized, which accounts for the heat production, while the rest of the lactic acid is changed back again to glycogen. All of this work on the chemistry of the muscles during their activity has great value for the treatment of disease and for the control of fatigue.

F. S. Banting



Ronald Ross (at age 51)

J. J. R. McLeod

Latest Prize to Insulin Discoverers

For last year, the award, as has been generally announced in the newspapers, was distributed to Dr. F. S. Banting and Professor J. J. R. McLeod of Toronto for their discovery of the substance known as insulin, used in the treatment of diabetes, and for related discoveries as to the mechanism of digestion and control of sugar taken into the body during different diseases.

The Nobel prize award to these investigators is but another recognition from among hundreds that have been showered on them since the first announcement of the discovery.

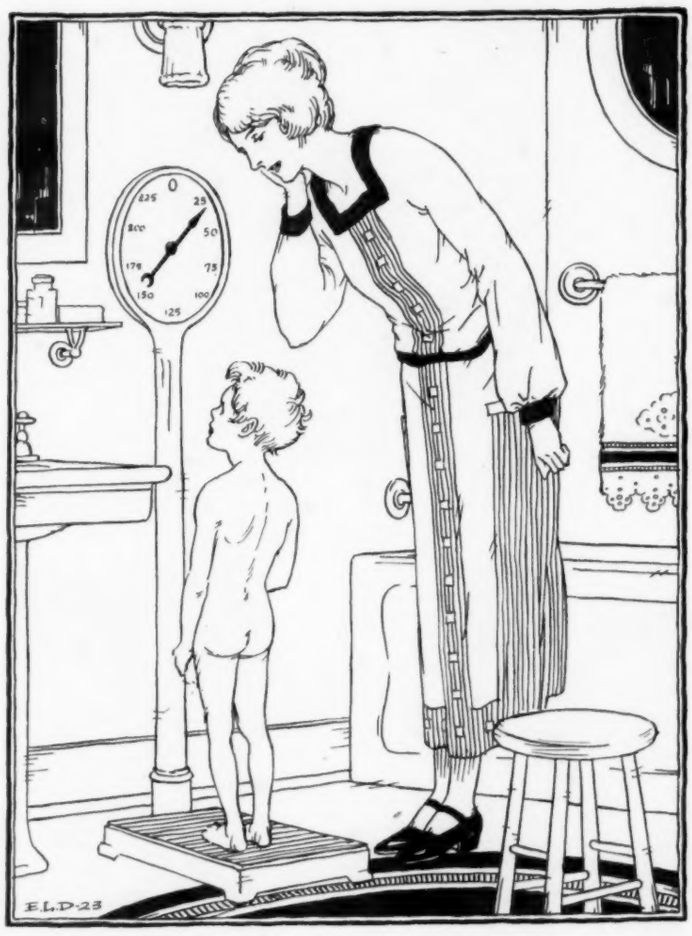
It has already been said that the establishing of the Nobel prize, with a particular prize for medicine, is a recognition of the great service which scientific medicine has rendered to mankind. It demonstrates, furthermore, the international spirit of science. In less than a quarter of a century, during which the prize has been distributed, every nation of the world has shared in the award. An analysis indicates that the award has in some instances recognized long years of research, culminating in the establishing of important knowledge in some special field, and again the recognition of a single investigation, such as that of insulin, salvarsan, or diphtheria antitoxin, which has meant the saving of thousands of lives.

MORRIS FISHBEIN.

Johnny Weighs Only Thirty Pounds

ALICE IRWIN

SUPPOSE Johnny to be six years old; he should weigh between 36 and 48 pounds, according to his height. But he is much underweight and his mother is worried; she comes to the doctor with her problem of how to increase his weight to normal.



Here is the diet the doctor prescribes: MILK, fruits—fresh or stewed—cereals, vegetables, including potatoes and rice, bread, butter and simple desserts.

Johnny's mother is in despair; the foods Johnny likes best do not appear on this list. Can't she give him meat once a day—at night when his father has it?

The doctor explains his reasons for omitting meat from the diet—the danger of putrefaction in the intestine; the likelihood of overstimulation for the child who eats meat for the evening meal; and, most important of all, the fact that when meat is eaten there seems to be a distaste for milk.

"Milk," says Johnny's mother, "Oh, I can't get him to drink milk at all! He hasn't since he was three years old. And if I try to make him he cries and gets worse than ever."

The doctor ignores this objection for the moment, while he explains the virtues of obtaining the protein content of the child's diet from milk and eggs instead of from meat. Then he returns to the milk problem.

Here are some of the suggestions which have been made for including milk—a whole quart a day—in a child's diet.

A child who refused to drink milk from an ordinary glass or cup took great pride in his own pitcher which was a hideously ugly but highly ornamental old stein from his father's collection of pre-Volstead days. Unusual pitchers may be found in any house-furnishing store and, while the fastidious housekeeper may not regard them as ornaments to her table, they may save a squabble at meal time.

Two little girls were eager to drink milk through the gayly colored hollow-tube glass drinking spoons which belonged to their mother's lemonade set. This device proved to have a double advantage—it succeeded in getting them to drink milk when they had tired of it, and each little girl drank very slowly, so great was her absorption in watching the milk come up the tube.

The rule "No milk, no dessert" works whenever the force of parental authority is strong enough to uphold it.

And milk may appear in many forms other than simply as a plain beverage. There is the whole catalog of milk soups; there is milk toast, plain or with a thickened white sauce; there are custards almost without number; there is cocoa or chocolate.

A Week's Diet for Johnny

Johnny's mother says she thinks if someone will only tell her what to cook for him for just one week she can get a good start and go ahead without much further assistance. Here is a plan she may follow:

BREAKFAST

Milk or cocoa

Cereal

Monday	Oatmeal
Tuesday	Cornmeal

Wednesday	Barley
Thursday	Oatmeal
Friday	A wheat cereal
Saturday	Rice
Sunday	Oatmeal

Bread and butter

DINNER (at noon)

Soft cooked eggs

Plain	Baked with butter
Poached	Creamed
Coddled	Poached in milk

With baked potato

Potatoes

Baked	Puree
Boiled	Puffs
Mashed	Creamed

Hashed in cream

Vegetables one or two kinds
Mashed fine or in soup

Spinach	Carrots
Onions	Squash
Peas	Beans
Celery	Cauliflower
String beans	Asparagus
Tomatoes	Mild turnips
Egg plant	Vegetable marrow

Fresh vegetables
Lettuce or celery
Bread and butter
Milk
Dessert

Oranges	Junket
Baked apples	Baked custard
Prunes	Blanc mange
Cooked pears	

SUPPER

Cream soup or milk toast
Bread and butter
Dessert (see list above)

The period between breakfast and dinner or between dinner and supper may be broken by crackers and milk, bread and milk, or bread and butter at 10 in the morning or at three in the afternoon, as the family habits dictate.

To Johnny's mother this diet plan may seem a bit dull and monotonous; it need not be at all if she will just put the same care and thought on serving it as any other professional person does on her job.

Oatmeal every morning in the week need never be thought of; any cereal when well cooked may take its place. Three or four tablespoons make an adequate portion and when served attractively with top milk or sugar should not prove tiresome.

Eggs in Many Guises

A soft-cooked egg every day? That is by no means necessary. But even a soft-cooked egg may appear in many different guises. One day it may be served in an egg cup; egg cups always please children by their unusual shape. The next day the egg may be turned out on tiny triangles of buttered toast; not whole pieces, which are hard to cut. An egg in one of mother's very best sherbet cups puts on a very festive appearance. Or turned over a mashed, baked potato it makes a combination easy to eat.

Most children like to watch eggs being poached; there is something fascinating in the way the egg spreads when it reaches the water and then draws itself together again. When poached in milk or cream instead of water the result is quite a different product. Baked with butter means dropping the egg into an individual baking dish or ramekin, putting it into a hot oven just long enough to coagulate the white, as when eggs are poached, and then putting a spoonful of butter on it to melt. Creamed eggs are not hard cooked eggs—they are never recommended for underweight children—but scrambled eggs with cream.

Johnny's mother is familiar with all the suggested ways of cooking potatoes, except the puree and puffs. The puree is made by boiling the pared potatoes until they are soft, putting them with the water in which they were cooked through a puree strainer or coarse sieve, adding as much milk as there is potato and seasoning with salt and butter. Potato puffs are merely mashed potatoes beaten lightly with an egg, butter and seasonings and put into a hot oven to puff up and brown. Hashed potatoes in cream? Just some left-over boiled potatoes reheated in a small amount of milk or cream.

How to Cook Vegetables

Johnny's mother confesses an ignorance of cooking vegetables. The best way to cook all succulent vegetables—celery, cabbage, cauliflower, peas, onions, spinach, asparagus—is in a small amount of water, until tender, and then serve them plain with butter. Most children love butter, and there is no real substitute for it.

The water in which the vegetables are cooked should be reserved for the making of cream soups.

Cream soups are very simple to prepare. To the water in which a vegetable has been cooked, an equal amount of milk is added and this mixture heated and thickened by using one tablespoon of butter and one tablespoon of flour for each cup of liquid. Tomatoes are the only vegetable which cannot be used in this way.

Children as a rule do not care for salads but often enjoy lettuce—either leaf or head—when served with sugar and lemon juice.

Desserts are easy; an orange sliced and sprinkled with cocoanut or cut up with a very ripe banana; apples baked or in the form of apple sauce; stewed prunes or their cousins, stewed figs; baked or boiled custards; and on very festive occasions floating island or charlotte russe; blanc mange made with cornstarch or better still with gelatine; plain fruit gelatines glorified with whipped cream or marshmallow sauce; and, of course, ice cream for Sunday dinner.

Does this diet mean monotony? Not a bit of it. Something new and delightful for every meal; a surprise once in a while; a real rejoicing for Johnny and for Johnny's mother with every pound gained.

Lie Flat, Sit Straight, Stand Tall

THE right use of the body is essential to the best health. To be 100 per cent. efficient should be our desire. This is impossible if the body is not used rightly. The human being is at its best when all of its parts are in proper adjustment. Too much of one secretion, the individual suffers; too little of the secretion, the individual suffers. Each may represent purely mechanical elements.

The following instructions were published by the commandant of the Army War College at Washington, D. C., for the benefit of student officers. They apply not only to soldiers but to every one who prizes health and good appearance.

If the body is used rightly, the head is held up, with the chin drawn in, and the blood flows to and from the brain easily. In this position the wits are most keen, the reactions are quick; it is the position of alertness. In the erect position the chest is held up, the breathing is carried on easily, and the circulation is at its best. A person so standing has much better color than when the body is drooped.

In this erect position, the ribs are drawn up, so that the diaphragm is raised, the abdominal wall is drawn in, and the abdominal organs must be held in reasonable position. The stomach must work better, the liver must work better, the bowels must work better, all of the other organs must work better than if they are sagged, as they must be when the body is drooped.

The same thing is true of the feet and the back. The chief cause of many of the cases of weak or flat feet or of weak or tired backs is the wrong use of the body. Learn to stand up straight, with the proper balance of the body, and most of this trouble will disappear.

Practice many times a day drawing yourself up to your full height. Feel tall. Draw in the chin, pull up the chest, draw in the waist, so as to flatten the back, and feel the weight chiefly on the front part of the feet. In walking, try to maintain the same position—swing along with the body held tall as if you owned the town, not as if you were ashamed of your town or of yourselves.

In sitting, keep the trunk of the body in the same position as when standing; do not bend at the waist line; do the bending at the hips. Lean backward or forward as much as you choose, but do not buckle in the middle.

In lying down, lie flat; get rid of the pillows. Lie on the back, or face, or side, as best suits you, but do not curl up and buckle in the middle. Give your organs a chance to work properly, especially at the times of rest. Sleep will be quieter and you will wake in the morning rested, with snap and "pep" enough to tackle the tasks of the day and make hard jobs seem easy.

Never forget that the best way to use the body for all purposes is as if it were stretched up as tall as possible, with head erect, chest drawn up and with the waist or abdomen drawn in.

Whether old or young, this should be learned; but since it is much easier to teach the child than those older, see that the children around you are so guided until you become proud of their good carriage. Their improvement will stimulate you to greater effort until this carriage becomes the habit, and once it has become instinctive to stand well poised, it will be hard to lose it. A strong, well-poised individual is better stock to be responsible for the next generation than the drooped type so commonly seen today.

Stand up, sit up, stand tall, sit tall, throw a big chest, make your waist or abdomen flat, stand or walk forward on the feet. Be strong and healthy and get that spring and joy out of life which are hard to find when the body is weak and drooped.

Do you shop for health, or do you shop to make an attractive display of food on the dinner table? You can accomplish both.

Just because you buy what your grocer recommends as "the highest grade" in food stuffs, you should have no reason to believe that you serve your family a diet rich in food value.

"The average American housewife," says the head of a large food products concern, "will pay an exorbitant price for fancy packages to satisfy an esthetic taste."

Learn to market for health.

Trowbridge

Helping the Housewife Market for Health

M. FAITH McAULEY

A WELL balanced diet has its beginning in the market basket of the housewife. While wise buying may not insure wholesome food, it is a first prerequisite; the foodstuffs necessary for a varied and adequate diet must first be purchased if they are to find a place on the menu. Although the expenditure of the family income involves such important factors as financial solvency, time, and health, little attention has been given to the function of buying or to the economics of consumption.

Production as an economic activity has been studied intensively. A special technique has been developed in the various fields as may be seen, for example, in agriculture or in manufacturing. Distribution, too, has been made the subject of special study. The economist has pointed out that the distribution of commodities is productive in nature, time and place values being created.

Feeding a Large City

In the large cities special agencies have developed whose sole function is that of distribution and whose service is elaborate and expensive. The most casual study of the problem of feeding the large city makes evident the fact that it is no simple matter. The work of assembling the needed foodstuffs and again dissembling them for city distribution is a business enterprise demanding the best efforts of specialists in merchandising.

No simple, direct method of marketing is longer adequate to cope with the present task. The city must necessarily be fed from distant producing points. This entails the assembling of food products from many distant and widely separated sources, means their shipment to large secondary markets and subsequent dissembling. For these services the city dweller must pay.

Fresh Vegetables Mean Better Health

Common vegetables, such as lettuce, cabbage, celery, spinach, and fruit, both deciduous and citrous, although highly perishable, are transported thousands of miles and made available the country over, throughout the year.

The contribution in terms of health which results from the balanced diet thus made possible is not appreciated. The spring dosage of sulphur and molasses, regularly administered by the grandmother twenty years ago, has been superseded by the fresh fruit and vegetables now available throughout the winter.

A discussion of buying problems may well remind the consumer of certain features wherein his own responsibility is large. While it is true that the tradesman tends to explain much malpractice on the ground that "the public demands it" when commercial selfishness is more truthfully the incentive, still the consumer is responsible for much that needs correction.

Must Pay for Table Luxuries

Take first the complexity of our present marketing system. Let all who deplore the excessive costs involved remember that the demands of the consumer are largely responsible for its complexity. The consumer whose demands are excessive and extravagant must pay the price entailed in meeting those demands. Peaches from Africa, endive from Belgium, parsley in midwinter from Bermuda, are luxuries—the consumer must pay for them.

A well organized, effectively managed municipal market, free from stultifying political influence, may be more than something to be hoped for if the consumer is as much interested in his own best interests as he vaguely hopes others may be.

Should Study Market Reports

Then, too, the consumer may well cultivate the market report habit. To study the price of potatoes and apples, to know the price at which eggs and cabbage went into winter storage, or to know whether the price of flour follows a decline in wheat, is quite as good applied economics as to know whether stock "A" fell two points as against a rise of three points in stock "Z." Intelligent protest at unfair prices is more effective than suffering in silence, but the protest to be effective must be an intelligent one.

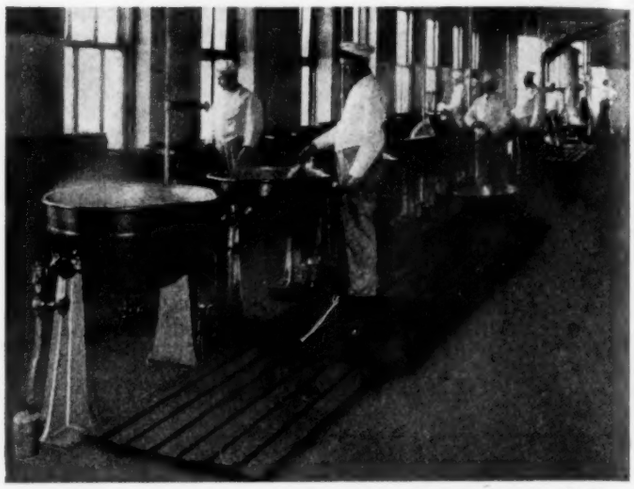
For dietary reasons the consumption of cabbage should be increased. The quite generally prevailing price of 7 cents per pound, or $140 per ton, for cabbage in winter does not do this, nor does it encourage production. Yet cabbage goes into storage in the fall at prices ranging roughly from $5 to $50 per ton, $10 to $20 being a common range. The loss due to shrinkage is figured at about 10 per cent. Intelligent protest from consumers would do much to decrease the price differential existing between the wholesale and retail price.

Often Take Pride in Unseasonal Food

The importance of seasonableness in consumption is not generally enough recognized. The production of most food commodities is highly seasonal. It is to the advantage of all concerned to consume most heavily of each commodity at the peak of its season. The consumer by so doing gets a product of better quality at a cheaper price than when purchasing out of season stock. Buying most heavily of products in season is also applying sound economics.

Courtesy Sprague Warner & Co.

The beautifully precise arrangement of olives in the glass container so commonly seen on the retailers' shelves results from hand placement of the individual olive. All of this elaboration adds to the cost but not to the wholesomeness of the product.



Courtesy Sprague Warner & Co.

Cooking kettles in a large food products concern. Preserves, jams and jellies are made only from fresh fruits and sugar, without any chemical preservative.

In purchasing poultry, it is poor practice, for example, to demand fresh fryers in January, or roasters in June. It seems in many cases to be a matter of pride to be able to speak of the presence of unseasonal food on the family table. In such cases the family which refuses to eat tomatoes in September when costing about $1 per bushel eats them with relish and unusual satisfaction, even though of inferior quality, when costing 40 cents per pound, in January.

The demand for only perfect stock is also to be deplored and is highly uneconomic, resulting as it does in the failure annually to market much valuable food material. The housewife too often gages her ability as a shopper on her success in acquiring only perfect stock. Only a few prime steers are produced; the great bulk grade is no higher than good.

Not every Jonathan apple is privileged to ripen in the sun and so acquire a uniformly brilliant red color. After a hot dry spell in summer, resulting in failure to head, much desirable lettuce is a total loss in the market gardens of the country because of the demand for firm blanched heads only.

Foolish Demands Result in Dishonesty

The consumer is responsible for much trade dishonesty because of the impossible nature of his demands. The housewife who insists on a young roaster for her Sunday dinner in January and who insists that the stock be fresh, forces her dealer to use dishonest methods or lose her trade. She should either not demand a roaster or accept cold storage stock. She forces her dealer to practise deception by thawing out

frozen stock and selling it to her with the assurance that it is freshly killed.

So too, the housewife is responsible for the adulteration of powdered sugar with cornstarch. Powdered sugar, unfilled, tends to form lumps, lumps readily removed by the rolling pin. Powdered sugar with lumps has been so generally rejected by the housewife that the practice of "filling" with cornstarch, often to as high as 30 per cent., has become an established trade practice. Cornstarch being cheaper than sugar, the trade has not been slow in adopting this method of meeting the housewife's demand.

Cold Storage Plays Important Rôle

The cold storage warehouse is a well established division of the present marketing system. Without it the variety which now characterizes our diet as contrasted with that of twenty-five years ago would not be possible. Highly seasonal products, such as small fruits, are held frozen. Fresh cherry pie is now made every day in the year by our pie factories. The highly seasonal production of such products as eggs, butter, poultry and fish is stabilized, and these products made available throughout the year by cold storage. The bulk of the egg trade of a big city must needs be supplied in the winter months from cold storage. Not enough eggs are produced during these months to supply even a small fraction of the demand.

Fish, one of our finest frozen products, is often unfairly and unwisely discriminated against. This commodity is also highly seasonal and the stock, frozen during the period of the heavy catch, is held thus, and made available over an extended season. Stock frozen fresh from the catch, in prime condition, is held and moved onto the market in prime condition after six months or even a year. The vital consideration is not the length of the storage period but the condition of the stock when frozen.

Packaging Is Expensive

The matter of packaging is also one in which the purchaser is vitally interested. He is in a large measure responsible for the limits to which modern packaging has gone. Articles which only recently were purchased in bulk, coffee and tea, sugar, beans, olives and pickles, syrups and vinegar, cereals, flours, meat and fish products of all sorts, are now purchased by the householder in package form.

The packaging of foods was brought in by the demand for more sanitary methods in handling food. It has been carried far beyond the limits desirable from the point of sanitation, and it lies largely with the consumer to keep the packaging practice within sane limits. The tradesman packages willingly since not himself but the consumer pays for the added expense. In many cases, for example, in certain prepared breakfast foods and in individual tea service, the container costs more than the contents.

It is to be seriously questioned whether a quarter pound print of butter, a two ounce bottle of mustard or a glass jar holding two ounces of dried beef or bacon have adequate reasons for being. The smaller the package the relatively higher the price. The five pound package of dried fruit thus offers a definite saving when compared with the one pound carton.

Elaboration Adds to Cost

Closely related to packaging is the matter of elaboration. The great bulk of elaboration involves much hand labor and adds heavily to the cost of production. Competitive trade methods and the demands of the consumer are responsible for the uneconomic limits to which much preparation has been carried. An effort is being made by the trade to discontinue the paper-lace trim, and the hand packed or faced top layer in packaging dried fruits, factors which add to the cost and not to the quality or food value. The success of this effort lies largely with the consumer.

The trade also offers, as seen in the illustration, a "dry packed" tin package in two sizes. Such a package may meet a need in our warmer sections where insect invasion causes heavy loss, or in inaccessible regions where supplies are obtainable at only infrequent periods.

Excessive elaboration is seen especially in certain lines such as olives, jams, and break-

In the laboratory, the jelly value of every batch of fruit juice is determined and from this the correct amount of sugar is added. The product then always jellies and is uniform. Chemists in the laboratories of large concerns analyze the raw materials used and later the finished food products.

Courtesy Sprague Warner & Co.

fast foods. The beautifully precise arrangement of the olive or the strawberry in the glass container so commonly seen on the retailers' shelves results from hand placement of the individual olive or berry. The unfaced, quart jar of such commodities, which is available, should be appreciated and demanded, as the facing adds nothing to the wholesomeness of the product.

In cereals elaboration is much in evidence as in the cooked, puffed, malted, and "predigested" types found on the market. A comparison of the cost of unelaborated and elaborated types shows a very high premium paid for elaboration.

Fresh vegetables, as well as the standard food commodities of the grocer's shelves, are "victims" of overelaboration. The beautiful, red radish must be washed, bunched, and the tiny root carefully removed. The white young onion must be carefully trimmed and shorn of its outermost layers, bunched and tied, all hand work, a part of which is unnecessary and done merely to improve the appearance of the product.

Quality vs. Appearance

The quality of a product is unfortunately not appreciated, nor as highly regarded as is appearance, by the average consumer. *To distinguish in his judgments of food commodities, between quality and appearance is one of the most important responsibilities of the buyer. Quality and value are real, appearance and price fictitious.* Too generally the consumer, ignorant of what constitutes quality in a commodity, pays excessive prices for mere appearance. The fact that the consumer "buys with his eye" is far reaching in its influence. It extends through manufacturing back to garden and orchard.

Thus jams made from fruit and sugar may show 65 per cent. solids and 35 per cent. water and pectin. Such stock, wholesome and of definite food value, is forced to compete with an inferior product of attractive appearance but of low food value. Through the use of commercial pectin and synthetic "fruit" coloring, the amount of fruit used may be reduced until the solids present fall as low as 30 per cent., and the water and pectin, of no food value, make up the remainder.

Mustard prepared pure is not able to compete successfully with its artificially colored rival.

Figs, bleached with sulphur dioxide and so rendered less wholesome, compete most successfully with untreated stock because of the appeal to the eye.

The most widely grown peach for the fresh peach market is the Elberta because of its fine appearance and good shipping qualities, the latter bespeaking poor eating qualities.

The fine appearance of the wet-picked fowl, plumped under conditions which do not add to its wholesomeness, makes such stock more acceptable to the average buyer than the superior, dry-picked fowl of less attractive appearance. Multiplication of illustrations is unnecessary.

How Canned Vegetables Are Graded

Grading is an important matter concerning which the average consumer is ignorant. Grading involves both quality and, in most commodities, size. Canned vegetables, for example, are graded for quality, four grades being recognized as follows:

1. Extra or Fancy. This grade consists of stock which is uniformly perfect.
2. Extra Standard or Choice. Here is found stock of high quality but showing less uniformity than the Extra grade.
3. Standard. In this grade the quality is not sufficiently high to enable the stock to grade as Extra Standard and there is a marked lack of uniformity.
4. Substandard. This is the lowest grade commonly canned. The stock lacks both quality and uniformity.

It is essential that the consumer know the brands of those firms whose goods he purchases, which correspond to these grades, since each trade brand is indicative of the grade and a corresponding difference in price. The Extra Standard is the grade usually designated as the "value grade." In this grade the purchaser is assured of high quality and the stock is also sufficiently uniform.

Courtesy Sprague Warner & Co. *Trowbridge*

Peas are graded as to size and to quality. In buying canned peas, the housewife must decide whether she prefers good appearance or food value. Sieve No. 1, at the extreme left, represents the lowest food value and yet brings the highest price.

Trowbridge Courtesy American Fruit Growers, Inc.

The greenhouse cucumber is sold on the wholesale market on the basis of definitely recognized grades. From left to right these are: unselected, selected and fancy grades.

In addition to this general grading for all vegetables, a second grading on the basis of other factors, such as size as in peas, is made. To understand the grading of peas, a knowledge of varieties is first of all necessary.

Variety Influences Quality of Peas

Peas are divided into two main groups, the smooth or field pea and wrinkled or garden pea.

The field pea is a small hardy plant and a heavy yielder, producing small pods well filled with small, round, uniform, firm peas. It grows throughout the northern United States and Canada, being commonly known as the Canadian field pea. One of the commonest varieties of this pea much used in canning is the Alaska. These peas are of very poor quality but, being firm, stand processing well and present a fine appearance when canned. Such stock is described by the trade as having "style." Style rather than table quality insures the sale of this stock. Since these peas are small in size they are not found in the larger "sieves" or sizes.

The second group of peas is the pea of the home garden, known as sweet wrinkled peas. These are less hardy than the field pea, the vine is larger, and produces large pods with large, somewhat irregular peas, tender, sweet, of a very fine flavor and of corresponding high table quality. Of these wrinkled peas there are varieties, such as the Gradus and Nott's Excelsior which are of medium size, and others as the Telephone which are very large. On the basis of size, therefore, it is evident that these peas of highest quality will be found in the larger sieves.

The quality of a canned pea is thus seen to be influenced by the variety. The age or maturity of the pea also is important. The extremely young pea is relatively low in food value being relatively high in cellulose, ash, and sugar. The mature pea, mature without being ripe and hard, is relatively high in food value with a marked increase in the starch and protein content. The best pea, therefore, is the one which is mature but not yet tough.

The grading of peas for quality is made on the basis of density. The peas are placed in tanks containing brine of density 1.04. The very small immature peas, being lightest, float and are removed, to appear when canned, as sieve one, known as petit pois. The remaining peas are next placed in a brine tank of density 1.07. Here the lighter peas again float and are removed while the riper, heavier, tougher peas sink. Peas are thus graded for quality, on the basis of relative density, into three grades.

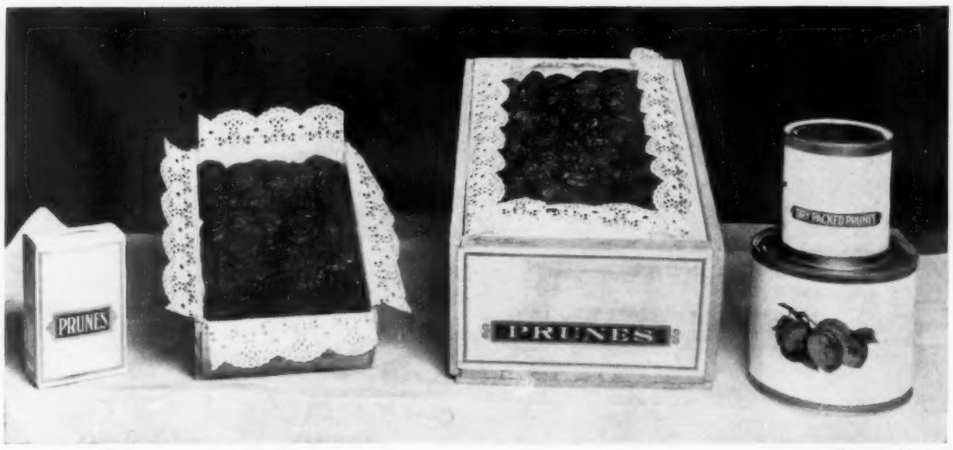
Peas Graded for Size and Quality

The peas are next graded for size by passage over a series of vibrating screens containing holes of graduated size ranging from 9/32 inch up to 13/32 inch in diameter. This results in separation into five grades on the basis of size. The details of grading differ with the section of the country, but the following sieves are regarded as standard:

No. 1 Sieve—Petit Pois.
No. 2 Sieve—Extra Sifted.
No. 3 Sieve—Sifted.
No. 4 Sieve—Early June.
No. 5 Sieve—Marrowfat.

Sieve No. 5 is also sometimes designated by the trade as "Telephone." So too a No. 6 sieve is sometimes found which is larger than sieve No. 5 and is also called "Telephone." The name Early June of sieve No. 4 is also used by the trade to designate the field type of pea. This is unfortunate for the consumer, for while the name is suggestive it cannot be called descriptive.

In buying peas one must then, first of all, decide whether appearance, or quality and food value are desired. Sieve No. 1 represents the lowest food value and for this the highest price is always commanded. The sieve to be selected will depend primarily on whether the pea is of the field or sweet wrinkled type. The present discrimination against the larger sieves is very unfortunate from the standpoint of both quality and food value and should be remedied.



Courtesy Sprague Warner & Co. Trowbridge

Paper-lace trim and a handpacked or faced top layer of dried fruits, such as these prunes, add greatly to the cost and nothing to the quality or food value. Manufacturers would be glad to get away from this practice, but cannot as long as the consumer demands such elaboration.

The grading of fresh vegetables also is coming in rapidly and in many cases grades have been standardized. The greenhouse cucumber is sold on the wholesale market on the basis of definitely recognized grades.

Grades of Cucumbers

The standard wholesale package is a ventilated crate containing, in the higher grades, twenty-four cucumbers. While there is a tendency to multiply the number of grades, four designated as Fancy, No. 1, No. 2, and Standards are common on the leading wholesale markets. The Fancy grade consists of perfect specimens uniformly perfect in shape, of a fine green color, of uniform diameter, and proper maturity. Cucumbers graded as No. 1 are also of high quality but show a slight lack of uniformity in shape and, the diameter and maturity are somewhat variable. Cucumbers graded No. 2 are lacking in uniformity, being characterized by irregular shape and underdeveloped or overdeveloped regions.

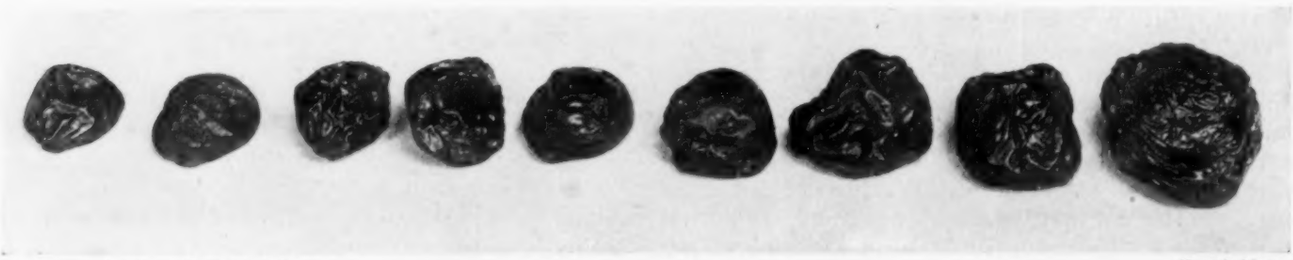
How Prunes Are Graded

Grades have also been established for dried fruits. Prunes, for example, are graded on the basis of size, and nine grades are recognized. The largest prunes, or grade No. 1, run from 20 to 30 prunes to the pound; the grades, proceeding on the basis of a difference of 10 in the number of prunes per pound, continue down to the lowest grade of prunes, which run as many as 100 to 120 to the pound.

The purchaser of prunes should here again know something of the varieties of prunes commonly dried. The Imperial and Mammoth are raised in the Santa Clara region of California and hence are often designated as Santa Clara prunes. These are large prunes, sweet, of coarse, loose texture and mild in flavor. The Italian prune, grown commonly in Oregon, is of medium size, high acidity, coarse texture, large pitted, of a rich color and fine plum flavor. The French prune, also called the Petit, is very small, sweet, fine in texture and rich in flavor, being very aromatic. It will be seen at once that the Petit, a very high quality prune, will be found in the lower grades on the basis of size since it rarely exceeds the 60 to 70 grade.

In other words, size is not indicative of quality in prunes, nor is price, based as it is on size, indicative of food value. The Imperial and Mammoth or Santa Clara, on the other hand, are found chiefly in the upper four grades. The Italian prune of Oregon is of medium size and so falls chiefly in the 60 to 70 grade.

Even this brief discussion of the buying problem must make evident that no thumb rule can be provided, the use of which will insure the desired results. The subject demands careful study. Wise buying has long been recognized as vital to business success. It is a hopeful sign that its importance for the home and for the community group and its bearing on such important factors as financial solvency and health are being recognized.



Courtesy Sprague Warner & Co. Trowbridge

Prunes are graded on the basis of size, and nine grades are recognized. The largest prunes, or grade No. 1, run from 20 to 30 prunes to the pound; the lowest grade, No. 9, runs 100 to 120 to the pound.

Clean Workers Mean Clean Food

L. B. GLOYNE

IF a food handler has tobacco-stained teeth, one may know that he is dirty and careless about his person; and that, in all probability, he is dirty with the food he is handling. If he is chewing or smoking tobacco, and spitting (practically every one does while using tobacco), it is beyond the question to consider him a fit person to handle food.

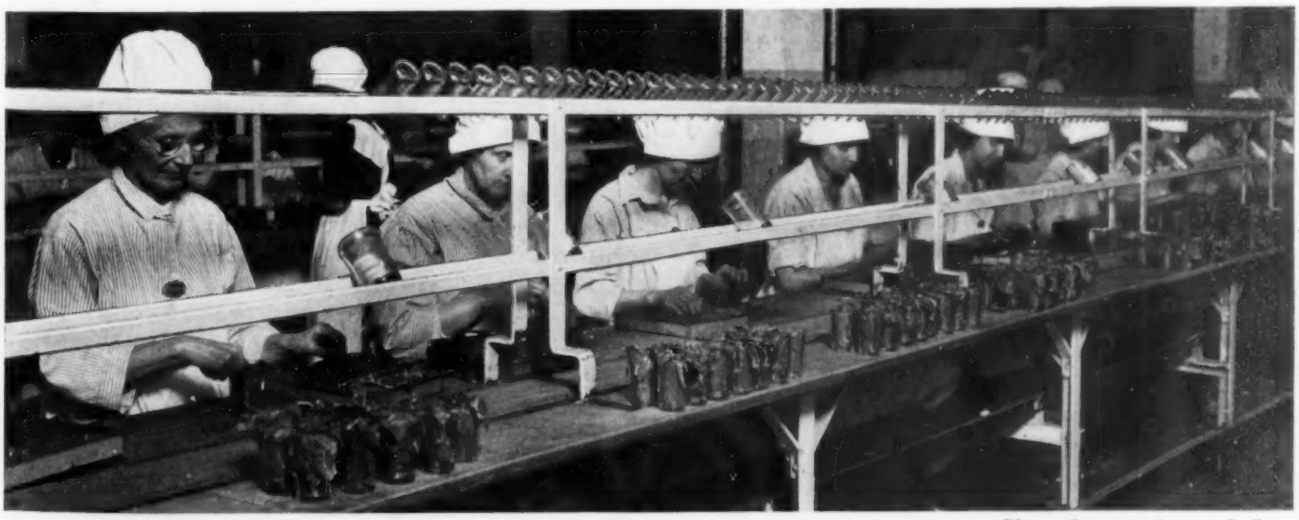
Before the handlers of meat in certain large packing plants are permitted to go to work they are given manicures to insure the cleanliness of their hands and nails so that food contamination through this source is not possible.

The careful housewife in trading with a food establishment does not always give the order over the telephone, or have some one come to the house and take it. She makes it a practice to visit the local store or market at reasonable intervals and while there she takes mental notes on the cleanliness of the personnel.

It is very important that the sanitary condition of the store, shop, or meat market be given careful attention. Food should be protected from flies, vermin and dirt; the ice box should be kept fresh and sweet; the meat hooks should be washed frequently; the fixtures should be kept clean; and numerous other sanitary precautions should be taken.

The public has been educated to the point where these requirements are almost universally recognized, but, as necessary as these are, the most important requirement of all is being overlooked in a great many communities, namely, that all food handlers be free from any communicable disease, and that they so conduct themselves that they will not transmit disease or filth. Most of the disease germs that affect the human body grow and develop within or on a human being more easily and more rapidly than they do any place else. Man is the source of most infections, so most attention must be paid to him.

In the handling of food, there is a complete chain, each link being necessary to assure the food reaching the mouth of the consumer in a pure condition; an example is the production and distribution of meat. The federal government spends a large amount of money in supervising the production of meat, and all meat which goes into interstate commerce must bear



Photos Courtesy Armour & Co.

Uniforms and caps are furnished by the packers, and each worker must change into a clean outfit the moment her old one becomes soiled; this may be in three hours or in three days.

the government inspection stamp. Sixty-five per cent. of the nation's meat is thus assured as to its purity and wholesomeness.

Inspectors examine the cattle, hogs, and sheep before and after they are killed; and then they watch the handling of the carcass throughout its stay in the packing house. They also see to it that the meat is shipped, properly refrigerated. A large number of cattle, hogs and sheep are rejected each year, so that the people all over the country may be protected.

But as soon as the meat reaches the local shop, federal jurisdiction ceases. If that piece of meat is then handled by a person who has tuberculosis, and the person is careless about coughing and spitting, the meat may become infected with tuberculosis and all the money spent to see that it reaches the final consumer pure has been wasted.

Or, to go still further, if the butcher handled that piece of meat properly, but the cook, butler, or waiter is diseased or is dirty about his habits, then again all the preliminary precautions would be for naught. What is said about meat applies to other kinds of food.

A good food establishment should enforce the following rules governing the conduct of the persons working there:

1. All persons handling food must be examined at frequent intervals by some competent doctor, who does not have a personal interest in the worker. (This would minimize the possibility of the person transmitting a communicable disease.)

Government inspectors watch the handling of a carcass throughout its stay in the packing house. Here hog carcasses are being inspected.

These men are loading refrigerator cars. Their long white coats and white head coverings prevent any contamination of the meat.

2. Any employee found using his apron for a dust cloth or for a handkerchief after visiting the toilet will be discharged.

3. Any employee who does not wash his hands with soap and water after visiting the toilet will be discharged.

4. The use of tobacco, while on duty, is absolutely prohibited.

5. Employees are expected to keep their teeth clean, their finger nails well trimmed and clean, their hands properly washed, and their clothing neat and clean.

Great progress has been made in the last twenty years in reducing the diseases of the intestinal tract, especially typhoid fever and dysentery, but at the same time, very little advance has been made in reducing the diseases of the respiratory tract. Beyond a doubt, the greatest public health problem today is the prevention of colds, grippe, influenza, pneumonia and tuberculosis. The main answer to this question does not lie in the field of pure food, but the time is coming when persons suffering from severe colds, and grippe will be eliminated from food establishments.

In conclusion, let it be said that entirely too little attention has been paid to the food handler himself, and it is the housewife who must bring about the proper attitude toward him. Large industries are interested in the problem of clean food from a financial standpoint, if for no other reason. It is up to the housewife to see to it that the complete chain is unbroken, and that the food reaches the mouths of her family in a pure and uncontaminated condition.

How Much Do College Graduates Know about Health?

THOMAS D. WOOD

OW much does the college graduate know about health? Approximately 1 per cent. of the young men and women of college age go to and through college. Probably 50 per cent. or more of the influential leaders in constructive movements of national scope are college graduates.

College graduates excel, therefore, in common sense and good judgment, in individual conduct and in example and influence exerted in various ways.

Do They Excel in Healthful Living?

Are they as helpful, as wise, as efficient in matters relating to the health of themselves, their families, their neighbors, the community, the commonwealth, and the nation as they are in other matters affecting human interest, well-being and happiness?

Are they as much more healthy and efficient as their superior educational advantages and training would lead people reasonably to expect?

Are they correspondingly more appreciative of the standards and requirements of health in legislation, in community health service, in health provisions in schools, in industry and in all the different situations involving specific application of the science and art of health?

Are college graduates, compared with other groups, more wise and successful, so far as health is concerned, in the management of their own families and households, in intelligent dependence on hygiene, in freedom from general, common forms of ignorance, errors, and superstitions relating to health and disease?

Are they correspondingly more intelligent in the selection of medical advisers; in discrimination between what is sound and what is quackery in forms of treatment and cure of human ailments and disease?

Unfortunately, statistics are lacking to furnish data necessary to provide answers to such questions as these.

Most of Them Lack Health Wisdom

Close contact for twenty-five years with students and teachers from many colleges, with a coincident general knowledge of the world during this period, leads one interested observer to the conclusion that college graduates, for the most part, are sadly lacking in the higher knowledge and wisdom regarding matters of health and living, which their superior education might be expected to provide them.

Often Prey of Quacks

College graduates from widely scattered institutions of higher learning show in surprising numbers and astounding measure ignorance of the most essential laws of health and their practical application. Great numbers of them accept absurd errors and superstitions in the field of disease and health.

They spend astonishing sums of money for patent medicines. They are often among the most credulous believers in, and patrons of, the unscientific healing cults and are of course prominently quoted whenever possible—and this in instances almost incredibly frequent —as patients and patrons of quacks and charlatans.

The college graduates of America have had on the average four years of liberal and supposedly useful education, beyond the advantages or at least beyond the educational experience of the rest of the population. Further, large numbers of the graduates of the colleges have received from one to three years of post-graduate training in such professional fields as law, medicine, theology, engineering, teaching, journalism and various fields of applied science.

If graduates from our colleges were adequately grounded in the fundamentals of the science and art of hygiene, sanitation and preventive medicine, as well as in the clear understanding of the general therapeutic possiblities of various branches of medicine and surgery, what might be reasonably and confidently expected from the direct and indirect benefits of such health education?

The following are suggested simply as some typical examples of the results of such beneficial higher education in health:

Benefits of Higher Education in Health

These college graduates generally would exhibit a markedly superior level of personal health, and the members of their families and their immediate friends would show the effects of wiser example and influence.

These college graduates through increased social leadership and influence would exert an intelligent, positive, helpful influence on many policies and practical programs affecting the health of the community. This would find

expression in substantial support of boards of health, of various forward-looking plans for health work in the schools, of projects for child welfare including prenatal health work, better provision for the preschool children, and appreciation and promotion of community provisions for wholesome play and outdoor recreation as well as healthful centers of amusement and recreation indoors.

Many of the plans and programs aimed at better health in the community, state and nation fail in strategic and vital degree of needed support because a few, or perhaps the majority, of the influential people in positions of commanding influence lack the requisite appreciation, rational understanding and discrimination in values, to give the balance of support needed for legislation, adoption of policies and appropriation of funds.

Professional Man Needs Health Background

Lawyers, with the advantage of adequate health training, in numberless instances on the bench and at the bar would be able to judge and to plead more wisely and helpfully in prosecution or defense of many causes involving human health and welfare.

Ministers possess numberless opportunities, both public and personal, for expression of opinions and interpretation of principles touching various phases of health and well being. The growing appreciation of the close relationship and interdependence between hygiene and ethics gives greater prominence and emphasis to the potential power and helpfulness of the clergy, if they were properly prepared in the field of health.

Even Doctors Need Health Training

Physicians, even, would be immensely advantaged by broad and thorough grounding, while in college, in the ideas and appreciations of health principles and applications before going into the medical schools for study. If they are to have a full understanding of health it seems essential that they should acquire a health consciousness and appreciation before they study pathology and disease.

Many of the proposed plans for investigation, experiment and demonstration in varied phases of efforts for health betterment are delayed or otherwise handicapped because there are so few physicians who really understand health; who are socially minded; who have a practical vision of, and devotion to, human service.

If the college graduates in congress and in the state legislatures had received the advantages of a comprehensive health education, the program of bills enacted each year into law would record the constructive beneficial influence of education in health matters received in college.

No group of the college educated needs more the advantages of a liberal health education than the prospective teachers, school executives and future members of boards of education.

Very frequently the rural or urban teacher without college training realizes more clearly and effectively the value of a complete health program in school or community than does the college alumnus.

Students Neglectful of Health Practices

What then should be provided or required for the young women and men in the colleges in a program in the science and art of health?

There should be primarily some form of instruction and motivation to insure in college students a high percentage of practice and accomplishment in the personal daily habits of physical, mental and social hygiene. From 50 to 75 per cent. of the students in all four years of college are wofully neglectful of the essential daily practices of the healthful and efficient life.

In the next place there should be an encouragement, if not a requirement, of the basic natural and biological sciences with required application in the realm of practical living and health.

For all men and women who receive in graduate study the benefits of a highly specialized professional training, it is essential that the foundations for full understanding and appreciation of matters affecting human health should be established during the years of undergraduate training.

How Health May Be Taught

Striking applications in matters involving health and welfare are possible in college courses in history, sociology, economics and philosophy.

The fundamental courses in civics and comparative civilization which are deservedly popular at the present time offer fascinating and promising opportunities for a wide variety of applications in health.

Then all college students, without exception, would be put in possession of the practical knowledge and appreciation of all phases of human health and welfare which belong to the sphere of experience and influence of the most highly trained and cultured group in the community.

Without attempting to describe or even to outline the content and method of a comprehensive program of health education for college students, the proposal may be briefly summed up in this way:

The solid foundations essential to that program of health knowledge and conduct, which is indispensable to a permanent civilization and culture, cannot be in any way assured unless the best educated citizens are fully qualified to furnish substantial support and full encouragement to such a program.

Teaching Health by Posters

FELIX J. KOCH

JUST the other evening we happened to drop in at the Fabings. The Fabings are a plain, everyday mid-western family, the sort of good folk one is apt to meet in ninety-and-nine of a hundred homes of almost any English-speaking land.

Being company, we were entertained by Father and Mother Fabing in the living room; meanwhile Howard and his sister Ora worked at lessons, as the parents put it, in the dining room beyond.

Conversation, with the adults, turned to a kinsman of the host, with whom we, too, chanced to be well acquainted. The man had been taken down with a bad attack of pneumonia, and Mrs. Fabing confessed that she was sadly worried about him.

Howard, as has been suggested, was busy with his home work in the room adjoining. Evidently his lessons were of such a nature that he could both toil and listen, for ever so often he gave us the benefit of some suggestion, some enlightening aside.

Upon his mother's expression of concern over the sick relative, Howard stopped work entirely.

"Gee, Mom, you musn't worry!

"Look," and he came into the room with a school poster, wet and dripping, on which he had been working. "Teacher says that worry overworks parts of the brain and makes them give off a waste material that is poison. This clogs the whole brain machinery, and"—he stopped a moment to get what he was to say exactly right—"and upsets it so you simply *can't* think out the very best ways you know for helping him!

"You see, it's this way about worry." And, seating himself on the arm of the chair while he placed a plump cheek against his mother's wan one, he gave us a really worthwhile account of the physiological and psychological effects of worry on the human frame. We adults had never learned so much about this subject in such a short space of time.

"How did you come to know all that, Howard?" another caller ventured.

"We had to take 'Worry' for the subject for our health posters one week in school," he said.

Then, as quickly:

"Want to see my poster?"

Of course we did.

Howard was off to his room and back in what he called a "jiffy" with a good-sized, brightly colored poster in his hands.

The upper half of the poster was given over to a cheery little child who just made you laugh aloud in response to his wholesome smile. Beneath this there was printed the admonition to:

BE
CHEERFUL
AND
LEARN NOT
TO
WORRY!

"It took a lot of time to think out just how to say that in the least number of words and then to space those words to give symmetry, (that means looking just right), to the poster," the boy continued.

"But all of us had to do something like that!

"You just ought to see some of the posters the teacher got as a result!"

Finding us actually interested, Howard went into details.

Throughout the public school system of Greater Cincinnati—it appeared from what he told us, and we later confirmed the information from the offices of the superintendent of drawing—particular attention is being given to the matter of home, outdoor and school hygiene.

Boys and girls are being taught exactly why one should

An array of health posters made by the pupils of the Cincinnati public schools

sleep with all windows open at night. They are taught why—aside from the mere matter of looks—the teeth should be brushed upon rising. They know why cocoa, chocolate and milk are better for them than coffee at breakfast; they

By exhibits, as well as posters, school children can graphically present health facts in a manner which will arrest attention.

know why it is better to leave the table hungry than to gulp down a lot of food.

Proceeding with the daily program, children are given the reasons, aside from the fact that Mother wants it, why they should wear rubbers in wet weather; why they should wear coats in the damp days of early spring. They know the exact reason why a desk in a sunny spot in the school room is preferable to a desk in a shaded corner.

To keep the health facts taught ever in the children's minds, many teachers of school hygiene agree that nothing is better than the child-drawn poster.

The poster teaches many health lessons.

First, the subject must be found by the child. This means a mental review of all the boy or girl has learned of hygiene.

When the subject matter is chosen, then comes the selection and arrangement of words to tell the story.

All the while the actual lesson which the child would teach is implanted ever more firmly in his mind. Similarly, final execution of the poster and all the talks from the teacher drive the desired lesson home.

The exhibition before the family leads to a discussion of the matter which the poster portrays, and after this, the poster is taken to school.

At school some things more important, according to child values, follow. The poster enters into competition with the posters made by classmates for the praise of the teacher, and for the less delicately worded praises of the girls and boys.

This friendly rivalry between many little artists obviously sets the children to discussing posters. Doing this, they must discuss the subject matter of such posters, and they cannot help but have the meaning of these health lessons flashed back and forth through their minds, recalled and rehearsed again and again. Every fresh recollection means remembering these lessons the more clearly, whenever the need of such recollection presents itself.

This bidding the children to design, to execute such posters and, finally, to bring them to school for distribution about the building, has been found invaluable in the work of teaching hygiene.

The whole process of poster making, including the reward of good work by assigning it to a post where all who pass must see, is proving a successful spur to good work in the drawing classes.

Mr. Vogel, superintendent of drawing in the Cincinnati schools, declares that never in the long years of his experience as teacher of drawing has he found such direct and undisguised eagerness for a subject as is being shown by the children in their work with health posters.

Boys and girls are turning to health subjects of their own accord, whenever the teachers suggest posters of any type. They are happy to draw them, contribute them—signed of course—whenever the publicity directors of the annual health shows indicate a need for such work.

In other words, they draw such posters, not because they must, as lessons, but because they have found that nothing is more interesting to

Subjects for health posters are easily gained from such exhibits as this.

all who may view their posters than health topics, interestingly portrayed.

They are converting you and me to the power of the poster to tell its tale, and to the tale of right living so told. So Mr. Vogel and his aides in the Cincinnati schools are most willing that the children shall carry on their crusade through paint, crayon and brush for hygiene.

Plain Facts about Health and Disease

HEALTH NEWS OF THE MONTH

Saliva Indicates Kidney Condition

For some time, physicians have been convinced that the determination of the amount of the substance known as urea which circulates in the blood is a most important test for estimating the ability of the kidneys to get rid of waste matter from the body.

Some time ago, Doctor P. S. Hench and Miss Martha Aldrich of the Mayo Clinic found that urea occurred in the saliva in about the same concentration as in the blood. More recently, they have extended their studies to almost 600 persons, and they have demonstrated definitely that the urea in the saliva closely parallels that in the blood. They have established a figure which represents the normal concentration, from which it is possible to calculate whether or not the amount circulating in the body is abnormal, and, therefore, whether or not the kidneys are functioning efficiently.

There are, of course, many instances in the clinical practice of medicine when it is neither desirable nor simple to withdraw blood from the body, even in the small quantities necessary for chemical determinations. Furthermore, the test worked out for determining the urea in the saliva is a simpler test than a similar determination as applied to the blood.

New Cures and Methods

During the past month, newspapers have announced a variety of cures and methods for the prevention of disease, which might lead the unthinking reader to believe that conquering the complaints of the past is a matter of daily routine. Unfortunately, this is not in accord with the facts.

Among the methods which have been heralded in the press are a cure for pneumonia by the injection of a new serum, a method of prevention of pneumonia by the injection of a drug, a cure for arteriosclerosis by the injection of a serum, cures for the infections following childbirth by serums and drugs, cures for infections of bone by the use of a peculiar poultice, and finally a vast mass of rejuvenatory methods. It is impossible in the scope of this editorial to pay individual attention to each of the methods mentioned: it is safe to say that none of them is supported by the type of proof that is usually accepted by students of science.

Methods may yet be found which will have specific virtues for the prevention or cure of pneumonia. Already, physicians are able to control various symptoms as they arise and, if the patient is seen early, to influence favorably the course of the disease; but no method exists that will affect the germ causing pneumonia in the same way, for example, as the diphtheria organisms and its products are affected by diphtheria antitoxin.

When a new method of treatment is proposed, it must be submitted to certain definite tests of its value. These involve the study of the method on a large number of cases, comparing the patients treated with the method with other patients not so treated and of the same relative age as those who have been given the new cure. This requires, of course, a large amount of time and study; such research can be safely conducted only in a hospital where the other treatment given the patients—diet, warmth, bathing and similar methods—will also be the same.

Arteriosclerosis, or hardening of the arteries, is the result of the deposit in the arteries of hardening materials, such as calcium salts. It is not yet definitely known why such hardening takes place in some persons and not in others. It is fairly well known that certain habits of life in the way of diet, excesses of various kinds and infections may contribute to the process. In view of this fact, it is extremely doubtful if any serum may be discovered which will have a specific effect in the prevention or cure of the disease. When an announcement of this sort is made, physicians are naturally skeptical.

Infections of bone are known scientifically as osteomyelitis. For five or six years there has been before the medical profession a method of treating such infections by the application of a poultice containing certain chemical salts. The method was first published in the press and later a considerable number of articles concerning it appeared in medical journals. It has had a fairly thorough trial on large numbers of cases with results that were of interest. On

the other hand, the large majority of the physicians and surgeons of America have not been particularly impressed by the method, and it has not had any considerable acceptance. It is interesting that during the five or six years since it was first introduced, the newspapers have exploited it as a new discovery each year and connected it on each occasion with a name of some new discoverer.

Of the various methods of rejuvenation which continue to be exploited, little need be said. It is only necessary to remark that there exists not the slightest evidence that any actual rejuvenation has been accomplished. Experiments of interest have been performed; results that are interesting, if not amusing, have been reported. The bizarre character of the work makes it excellent newspaper material, but the vast majority of medical scientists are content to consider this phase of the experimentation as merely a sort of passing show. M. F.

PHYSICAL DEFECTS OF INFANCY AND CHILDHOOD

WHAT a large proportion of physical defects are to be found in the young was shown at the Better Babies Conference held in connection with the Illinois State Fair in October, 1923. Of 1,076 children between the ages of six months and six years who were examined, only one child fully reached the standard of normal measurements used.

Enlarged glands, abnormalities of feet and legs, minor skin troubles, disturbances of nutrition, decayed teeth, and especially enlarged tonsils made up most of the physical defects found. Of the group 614 were reported to have been breast fed and 130 others partially so.

The great majority of defects found in these earlier years are easily corrected by medical and dental attention, and when they are so amended a great deal of discomfort, often pain, and yet more often interference with normal development, are prevented. One of the chief objects of the medical examination of children when they reach school age is to detect and remedy hampering physical defects. These defects ought to be looked for and corrected much earlier than this.

When the family doctor comes to be generally regarded as the family health adviser, his function being to prevent even more than to cure disease, the pre-school age will receive the medical attention which its importance demands. It is in these early years that the seed is sown for so many of the defects which were found to make more than one third of our young men unfit for military service when examined at the beginning of the World War. With these defects remedied as they should be at the earliest possible moment, children will come to the school age much better prepared to undertake and to profit by the training for life which the schools are designed to afford. J. M. D.

THE POSSIBILITY OF EXTENDING HUMAN LIFE

AS HAS been frequently stated in these columns, the science of preventive medicine, during the last few generations, has developed so greatly that it is now possible to prolong human life.

This has been demonstrated practically by the tables of life expectancy of the great insurance companies of the country. In the Harvey lecture delivered before the New York Academy of Medicine, Dr. L. J. Dublin, statistician of the Metropolitan Life Insurance Company, endeavored to answer the question as to how far this matter of extending human life may continue.

An analysis of the life table of 100,000 persons shows that at the moment of birth they have ahead of them a total of 5,148,536 years, which is an average length of life of 51.49 years for each of them. This figure is known as the life expectation. The maximum expectation of life is at the period of three years of age, however, when it is 57.72 years, because at this age the child has already overcome the heavy mortality of the first two years of life. Naturally, as life goes on, up to a certain period the expectancy diminishes numerically and increases proportionately so that a man of 25 years has an expectation of 39.6 years, at 40, 28.2, and at 50 almost 21.

This means that persons surviving to the age of 50 may, on the average, expect to survive to the age of 71. A great number of such persons, however, will live considerably beyond 71, and a small number may even live until 100. Even at 70 years of age, according to the life tables, there are more than nine years of expectation.

As Dr. Dublin points out, the expectation for women is greater than that for men. At birth a woman has an expectation 3.33 years greater than that for men; at 30, 2 years greater; at 50, 1.33 years greater, and at 70 about 0.5 years greater.

Throughout the country, during the last 70 years, life expectancy has increased 12.5 years. In Massachusetts, during the last 65 years, there has been a gain in life expectancy of 15 years.

In analyzing the various attempts that have been made to prolong life and to decrease mortality at various age periods by the control of infectious disease and by periodic physical examinations, Dr. Dublin concludes that it is possible to attain large results in increasing life expectancy in the future. Although diseases like tuberculosis have declined greatly, the conditions that reflect personal hygiene and the general care and use of the human body, such as heart disease, Bright's disease, and other diseases affecting middle life, are not declining. Three conditions, heart disease, Bright's disease, and cerebral hemorrhage, curtail life expectancy by about four years. If it is possible to reduce the mortality of these conditions 50 per cent. at any age period, the expectancy at that period will increase proportionately.

In view of the sensational attention that has been given in the press recently to so-called methods of rejuvenation, it is interesting to read what Dr. Dublin has to say about increasing human life beyond 70 years of age:

"We have made no assumption of life saving in old age, that is, from, say, age 70 onward, because during the last half century there has been practically no improvement in the mortality among aged persons."

Considering all of the data available as to life prolongation and the prevention of disease, Dr. Dublin constructs a hypothetical life table that expresses the best mortality we may hope for with our present knowledge. Such a table indicates a total expectation of life to be 64.75 at birth, or an increase of 10 years in the present span of life expectancy.

After the age of 20, one has an average expectation of 50 years or a total of 70. It is a confirmation of the saying of the psalmist: "The days of our years are three score and ten." That saying was, no doubt, based on an extensive experience. After many centuries it is only possible to say that with the best knowledge that science can offer, it is possible for the vast majority of the population to reach that figure.

M. F.

PRESCRIBING BY MAIL

THERE is a widespread impression that medical treatment can be prescribed by mail on the basis of the description of symptoms and signs by the patient. It is not possible to do this satisfactorily. Symptoms do not make a diagnosis. Oftentimes what appear to the non-medical person to be the same symptoms and signs in two individuals may be due to quite different causes.

Moreover, the wise physician does not prescribe for a disease, he treats the person afflicted with what is best for that person at that time. This can only be determined in each instance by a thorough knowledge of the previous history and of the symptoms and physical signs present in the patient. Even in the very few diseases for which specific remedies are known (such as quinin for malaria, and arsenical and mercurial compounds for syphilis), the dose and the frequency and method of administration must be determined for each separate patient.

Exceptionally, the physician who has been in attendance on a sick person, and is thoroughly familiar with the conditions, may by written or oral message indicate what measures can be adopted to meet temporarily a new development in the case. To attempt, however, to give anything more than the most general medical advice or treatment for any person, except on the basis of a careful personal examination, is to court failure.

J. M. D.

THE VALUE OF FAT

BEFORE 1914, Americans presumably used more fats than the people of any other country. Whereas the American usually used 3½ ounces of fat per day, the Englishman consumed 3⅛ ounces, the German 2⅓ ounces, and the Frenchman 1½ ounces.

Following the war, the foreign consumption of fats decreased still more, primarily because the animal fats (butter and lard, for example) were available only in small amounts, since there was no food for the stock from which these fats were obtained. Furthermore, the vegetable fats and oils, such as olive, cottonseed and peanut oils, could not be imported on account of the lack of ships. The result of this shortage has been a gradual substitution of animal fats by vegetable substitutes made from the oils mentioned and by mixtures of such oils with harder animal fats, and oils made solid by passing hydrogen through them.

Experts in human nutrition have now begun to inquire whether it is satisfactory from the standpoint of human diet to use these substitutes. The fact is that their use involves the consideration, not only of the amount of energy they may produce and their use of digestion, but also their relative cost, palatability and whether or not they can meet the traditional preferences or tastes of various peoples. Furthermore, fats vary in the amount of vitamin substances—vitamin A—which is necessary to

life and growth. Green vegetables also contain this vitamin, so that the diet is not dependent altogether on the animal fats for it. As pointed out in a recent editorial in *The Journal of the American Medical Association,* all of these factors must be taken into consideration.

The kind of fats which different nations have eaten has depended chiefly on climatic and economic conditions. Olive and cocoanut oils are used in tropical and semitropical countries, lard and butter in meat producing countries. Sicilian peasants enjoy olive oil with their bread, but most Americans prefer butter. *The Journal* agrees with the conclusions issued by the United States Food Administration during the war:

> Except for the vitamin present, there is no difference in the food value of different kinds of fat. All yield equal amounts of energy, and are digested with virtually the same ease and completeness. Scorched fats, such as are found in foods that have been fried at too high a temperature, sometimes prove troublesome and have given fried foods the reputation of being indigestible; but this is probably due to the poor cooking rather than to the fat itself.
>
> Although fats do not usually cause any digestive disturbances, they do remain in the stomach longer than the other nutrients, and this seems to have a most interesting effect on the sensation of nunger. That sensation begins to be felt after the stomach has been empty for a time. If there is little or no fat in the meal, the sensation begins more quickly, and this probably explains why a diet poor in fat seems so unsatisfying and why one rich in fat seems "hearty."
>
> Fat in the diet has a marked "psychologic" value. Food without fat is likely to be without flavor and monotonous. If a food is distinctly unpleasant and different from that to which a person is accustomed, actual digestive upset may result. However, all the more recent investigations indicate that the margin between the amount and kinds of fat we may desire and that which we actually need is wide beyond expectation. M. F.

AGAIN — SAFE HOUSING FOR UNFORTUNATE DEPENDENTS

OUR criminal negligence in housing insane and other dependents in fire-trap buildings is emphasized by the deplorable tragedy which occurred at the Insane Hospital, Dunning, near Chicago, December 26. Fire, which destroyed one of the asylum buildings, resulted in the death of eighteen victims. In several other state institutions in Illinois, having various types of dependents, the buildings are known to be far from fire-resisting, and loss of life from fire is likely to occur at any time.

Attention was called in the December number of HYGEIA to the campaign which had been conducted in New York to secure a bond issue of fifty millions of dollars to make more ample and safe provision for the housing of the state dependents. This movement was prompted by a similar tragedy at the Manhattan State Hospital last February. It is gratifying to learn that the citizens of New York were so aroused to the needs of these unfortunates that the bond issue was carried by an unusually large majority of 707,188 in a total vote of 1,504,810. In only fifteen counties was there a majority against the bond issue and, strangely enough, these were rural counties.

It seems incredible that the people of any civilized community can continue so indifferent to the dictates of common humanity as to allow the insane, the crippled, the sick, or even the criminal dependents to be incarcerated in buildings which are a menace to their safety.

J. M. D.

HAVE WOMEN GENIUS FOR INVENTION?

THERE has been always a widespread impression that women are without the mental qualities requisite for the invention of new devices. A survey of the names of inventors would have tended to confirm that impression until comparatively recently, when, however, the number of women who have appeared in this field has shown a continously noteworthy increase. It begins to appear that many women have the power to make material contributions to creative achievement, to design, devise, discover, and invent devices to reduce labor, to forestall danger, disease, and death, to embellish life with creature comforts, and to enrich humanity with new stores of knowledge.

The director of the Women's Bureau of the United States Department of Labor, Mary Anderson, recently reported the results of an investigation of the records of the United States Patent Office which is of interest in this connection. This has a bearing only on the "inventive" activity of women as distinguished from the larger field of "creative" thought. Creative activity goes on ceaselessly in art, science, literature and other fields where the results are less readily measured.

The spectacular successes of a few women inventors have not changed the prevailing disbelief in the creative ability of women as a whole; the few have been regarded as prominent exceptions. The purpose of this search, therefore, has been not to give further attention to a few well known and successful women inventors, but to measure the number and analyze the quality of all inventions of women recorded in a given period.

In the ten years chosen for Miss Anderson's study 5,000 patents were granted to women for useful inventions. This was less than 2

per cent. of the total number of patents granted during that period, which fact would seem to confirm the general impression as to woman's lack of inventive capacity.

Further study, however, shows that these 5,000 patents are more than the total number issued to women in the one hundred and five years previous to 1895. The rate of increase in patents issued to women in the last decade was about three times the ratio of increase in those issued to men. This accelerating rate of increase in the number of patents issued annually to women is evident during the last three decades. Considering the handicaps under which women inventors have labored, the showing is a very creditable one. With proper encouragement and with better facilities for marketing or promoting their patented creations, there is reason to expect a rapid increase in the number of inventions by women.

The 5,000 inventions listed are classified in twenty-three groups. The largest number, as might be anticipated, are articles for household use, for which 1,385 patents (27.6 per cent.) were issued. Next in order (1,090 patents) are articles for personal wear and use; third (378 patents), supplies for use in industry, agriculture and commerce; and fourth (227 patents, 4.5 per cent.), articles for use in medical, surgical, and dental equipment.

J. M. D.

NEW THOUGHT

WOODBRIDGE RILEY, professor of philosophy at Vassar, has contributed to the newly published *American Mercury* a survey of that extraordinarily fallacious method for the healing of disease known as "New Thought." He points out that "New Thought" was derived from the same well of wisdom as Eddyism, namely, Dr. Quimby, the magnetic healer of Portland, Maine. The original "New Thoughters" prided themselves on not seeking notoriety and not chasing the dollar. With the passing of Evans, who wrote the original texts for the "New Thought" cult, his disciples began to imitate what Professor Riley calls the "Eddian Sales Department."

Today, Christian Science is no longer the only "pipe line to the springs of health." Professor Riley shows that "New Thought" has become thoroughly commercialized. It has field lecturers, correspondence course and summer schools. Professor Riley shows how this system of mental belief originated, how it influences the community, how its followers perform "a daily dozen of mental gymnastics." As to its relations to disease, we quote:

> "Mrs. Eddy once declared that the disease epizoötic was never contracted by the horse until man's noble friend heard the fatal word from some ignorant horse-doctor. The New Thoughters carry on this same idea and offer hints on how microbes are made. 'By thinking we manufacture microbes, whereas by impregnating the whole being with thoughts of love we exterminate disease germs.' A similar passage in Master Mind reads as follows: 'Resolved, That I will not unnecessarily describe accidents or plant a fear of thought in my own mind or in that of another. . . . Resolved, That I will not form the habit of warning others, especially little children, of danger, but will be a suggestion of faith to everyone.'
>
> "All this sounds like an old melodrama in which the father's curse carries on from generation to generation until it is fulfilled at last in some dire calamity. The tragic side of the attempt to avoid disease by not thinking about it is that hundreds of innocent lives are probably sacrificed to neglect. Not long ago in California, the New Thoughters, the Christian Scientists and the whole tribe of drugless healers tried to prevent the medical examination of children in the public schools. The referendum on their prohibitory act was defeated, but I am told that the health laws are not carried out in many of the coast towns, where 'metaphysics' flourish. A similar referendum will be brought before the voters of the State of Washington this year, and it remains to be seen whether the boards of health will be stronger than the masterminds of the immaterialists."

M. F.

Fresh Air Elizabeth

MARGARET E. GREENWOOD AND ELEANOR M. FONDA

"NOW Elizabeth," said her father, "I wish you wouldn't sit with your little nose in a book all the time; why don't you run about and play out of doors, as the other children do?" "Oh Daddy," smiled Elizabeth, "don't you like to have me in the house when you are home? I love to stay with you!" And Elizabeth's father, who cared more for her than for all the rest of the family and his bank account combined, laughed and said no more.

"Elizabeth," complained her mother, "you have left your milk again and that delicious cereal I cooked for you, too. You do that every day. You haven't eaten dinner enough to keep a bird alive!"

"But Mummy, I'm not hungry, and you know that I don't like cereal, and milk makes me feel sick. You do not want me to eat things that make me feel sick, do you?" coaxed Elizabeth. "I ate one of your cookies; you do make the nicest cookies!" And Elizabeth's mother kissed "the sweetest little daughter anyone ever had," sighed a little over her lack of appetite, and went about her work.

"I declare, Betty Brown," scolded her big sister Edith, "you ought to be ashamed to sleep with all of your windows closed, and your head under the bed covers. You don't get a particle of fresh air. Don't you know that it will make you sick?"

"Please don't scold me, Edie!" begged Elizabeth. "The cold makes me cough, and I know you don't want me to lie awake and cough all night."

And Edith, like the rest of the family, could not deny herself the pleasure of letting little Elizabeth do as she pleased; she was so dear and sweet.

In school it was the same. Milk made Elizabeth feel ill, so she didn't drink it when the other children did, and the exercises they were expected to do gave her a headache and tired her because she wasn't strong; so did the outdoor games and sports. So Elizabeth was excused, and she sat still and watched the others, or went to the library to read.

Then one day a thunderbolt fell on Elizabeth's devoted but weak family. Elizabeth had felt so tired for several days that she did not want to get out of bed. The spring weather made her feel lazy, she said, and her family agreed with her, but because she was so very precious and not strong the doctor was asked to "just drop in and take a look at her." Then came the thunderbolt.

Elizabeth had tuberculosis of the glands of the throat! She must have an operation, and treatments, and perhaps she would recover, and perhaps not! The doctor was sorry for the terror-stricken father, mother and sister, but he knew he must speak plainly if Elizabeth were to be saved.

"It is partly your own fault," he said, "you do not make Elizabeth live as she should; you do not make her live in the fresh air and sunshine, nor take the food and exercise that she should."

"But doctor," protested the mother, "she isn't strong and it seems unkind to make her do what she dislikes to do."

"A little less sentiment, and a little more common sense would have been more kind to

Elizabeth," the doctor told them rather brutally, "of course, if what you want is a sweet little angel in heaven, let Elizabeth have her own way and grow her wings; it won't be long!"

But oh no, no! it was not *that* they wanted. They would do anything and everything to save Elizabeth's life, even at the risk of making her dislike them, if that were possible.

Elizabeth did not have to go away to the mountains nor to the seashore. Tuberculosis, if taken in time, could be cured at home, the doctor said; but his orders about food, and fresh air, and rest, and exercise must be carefully followed. And no family ever listened more eagerly to a doctor's directions, nor followed them more carefully, than did Elizabeth's family. Elizabeth followed them too.

Coaxing, even tears, had no effect on her hard-hearted family, but to tell the truth there was little of either, for her own loving disposition made her willing to endure discomfort rather than to make unhappy those who cared for her.

She nicknamed herself "Fresh Air Elizabeth," for she spent all of her waking hours out of doors; her sleeping ones too, until the snow came, on a cot in the tiny "pocket-handkerchief" of a yard in the rear of their Brooklyn home. And she drank milk; quarts and quarts of it (and it never made her sick either), and she ate cereals and broths; every hour there was something to eat. One might think she was being stuffed for a Christmas dinner, she complained.

She exercised too, when she had gained a little strength after the necessary operation on her throat; very simple exercises at first, more strenuous ones later on. She played ball with "Petey," the little fox terrier Aunt Sara gave her, and went miles and miles along the pavements on the roller skates that Uncle Lon bought for her, and on the bicycle Cousin Jimmie sent. Later she went swimming in the pretty swimming suit Aunt Dottie gave, for everyone sent or did something to help Elizabeth get well.

At the end of two years Elizabeth's doctor took her to the hospital to see the specialist who had performed the operation on her throat.

"I don't believe it," declared the specialist, looking at Elizabeth through his glasses. "Why, that Elizabeth was a little pale, weak, tuberculous Elizabeth, almost ready to go to be a little white angel in heaven, but this bouncing, red-cheeked, bright-eyed young lady looks as if there was nothing in the world she couldn't do. I declare, it makes me feel well and strong just to look at her. No," and he shook his head, "it can't be the same!"

"But it is," insisted Elizabeth, growing rosier than ever, "only it's not 'poor little Elizabeth' any more, but strong, healthy, happy Elizabeth, thanks to the fresh air and you!"

Nine Little School Boys

Rosalind Sibold

Nine little school boys,
All underweight.
One drank a glass of milk,
Then there were eight.

Eight little school boys,
Sitting up till 'leven.
One tumbled into bed,
Then there were seven.

Seven little school boys,
Fat they had nix.
One counted calories,
Then there were six.

Six little school boys,
Never seemed to thrive.
One kept a weight chart,
Then there were five.

Five little school boys,
Throats always sore.
One had his tonsils out,
Then there were four.

Four little school boys,
Dirty as could be.
One hopped into a tub,
Then there were three.

Three little school boys,
Lessons hard to do.
One learned to sit up straight,
Then there were two.

Two little school boys,
Smiling was no fun.
One brushed his teeth each day,
Then there was one.

One little school boy,
Watching what was done;
Said, "B'lieve I'll do it too."
Then there was none.

HEALTH NEWS AND VIEWS

DANGER IN SWIMMING POOLS

Altogether too frequently does one hear of some acquaintance who has become infected after swimming in a certain indoor or outdoor pool. There are few, if any, more healthful exercises than swimming, but a real danger exists in swimming in pools in which no attention has been paid to sanitation.

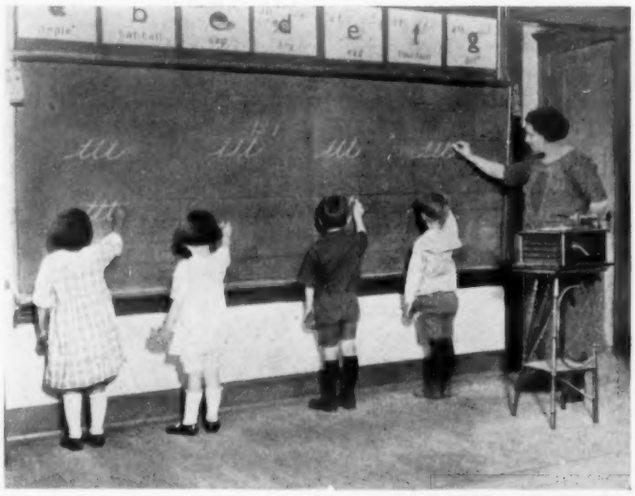
In the state of Minnesota recently a special committee inspected forty indoor and ten outdoor pools, and found that about 75 per cent. of them were being operated without information as to their sanitary condition. The League of Minnesota Municipalities took up the question and has conducted some experiments on the best methods of sterilizing pools.

The three chief methods of swimming pool sterilization are by means of ultraviolet ray apparatus, a chlorin machine or by changing the water each day. Of course, it is almost useless to empty and refill a pool each day unless care is taken to clean the pool when empty.

WRITING TO MUSIC

Just about everything is now being done "to music."

In earlier generations it was to music that men marched to war, or with their ladies danced until morning. Now its uses are more varied. Movie patrons chew gum to music; athletes develop muscle to music; factory workers toil to music; hospital patients get well to music. Those who dine to music also reduce to music.



Pacific and Atlantic

And now comes writing to music.

In the Los Angeles schools, a teacher, Miss Louisa Spencer, is said to have reduced the whole system of penmanship to five musical movements, and to have supplanted the copy book by the phonograph. The illustration shows the results with children who have been learning to write by music, after one month's instruction.

CHANGING RULES FOR QUARANTINE

As new knowledge of the communicable diseases is obtained, changes in the regulations for quarantine are made necessary to bring them into conformity thereto.

The department of health of the state of Pennsylvania has recently issued new regulations which accord with the present understanding of the facts in relation to the behavior of these diseases. They are as follows:

"The regular quarantine period for diphtheria is extended five days and scarlet fever ten days, after the removal or death of the patient, unless the immunity of all other members of the household can be established." This can be determined, in the case of diphtheria, by the Schick test.

"The quarantine period for whooping cough has been reduced to four weeks from the date of the onset, while after the third week, with the permission of the health authorities concerned, the patient may be taken on the streets or highways in charge of a responsible person, who shall not permit him to come in contact with individuals other than the immediate family.

"Actinomycosis, favus (a disease of the scalp), impetigo contagiosa, the itch, ringworm, trichiniasis and hookworm have been stricken from the list of reportable and quarantinable diseases.

"In cases of whooping cough, measles, German measles, chickenpox or mumps, children immune, from having had the disease previously, may attend school and there is no restriction as to the movements of adults in the family.

"Encephalitis lethargica (sometimes called 'sleeping sickness') has been made reportable and, if deemed advisable by the health authorities concerned, quarantinable.

"In typhoid and paratyphoid fevers, there is no time limit, but physicians may not request the removal of the placard until the patient has had a normal temperature for a period of seven days.

"All typhoid convalescents are regarded as potential carriers of the disease and are restricted as such, until proved otherwise.

"Known typhoid and paratyphoid carriers are not permitted to change residence without notifying the health authorities concerned, or to engage in occupations involving the handling of foods, including milk and its derivatives.

"No case of communicable disease may be moved from one place to another without written consent of the health authorities concerned."

HAVE YOU SEEN A HEALTHMOBILE?

New York City has a Healthmobile which goes about from school to school showing health movies. The Healthmobile is a large truck fitted up with a motion picture machine, silver screen and all the necessities for a sure-enough movie. Parents, as well as children, gather on the sidewalks to watch the child stars in the health films.

A miniature theater also is used in several cities to teach health lessons. One theater called "Tiny Tim's House" contains little puppets called Mistress Bread, Mickey Potato and Skinny Cough Medicine, who strut about on a wee stage and teach their lesson in a merry fashion. Lines from the play are read by persons behind the scenes, just as in a Punch and Judy show.

The Healthmobile has succeeded in many instances not only in making health habits attractive to children, but in interesting the parents in health facts.

International Newsreel

MARKETING IN INDIA

To carry burdens on the head is said to call for erect posture. These natives of Madras should not be round-shouldered, if that is true.

Pacific and Atlantic

AN ESKIMO SCHOOL GIRL

This nine-year-old Eskimo child has been adopted by a San Francisco family and is being educated in the public schools of that city. When her school days are over, she will return to Alaskan snows to serve her own people.

Pacific and Atlantic

NOT TOO OLD FOR RACING

This pair, aged 50 and 70, were among those who finished in a walking race from City Hall, New York, to Coney Island. They outwalked many sturdy athletes half their age.

International

IN A SOVIET HOSPITAL

Famine, never a stranger in Russia, has helped to fill the cots in this Soviet children's hospital. The undernourished child is always the earliest victim of disease and contagion.

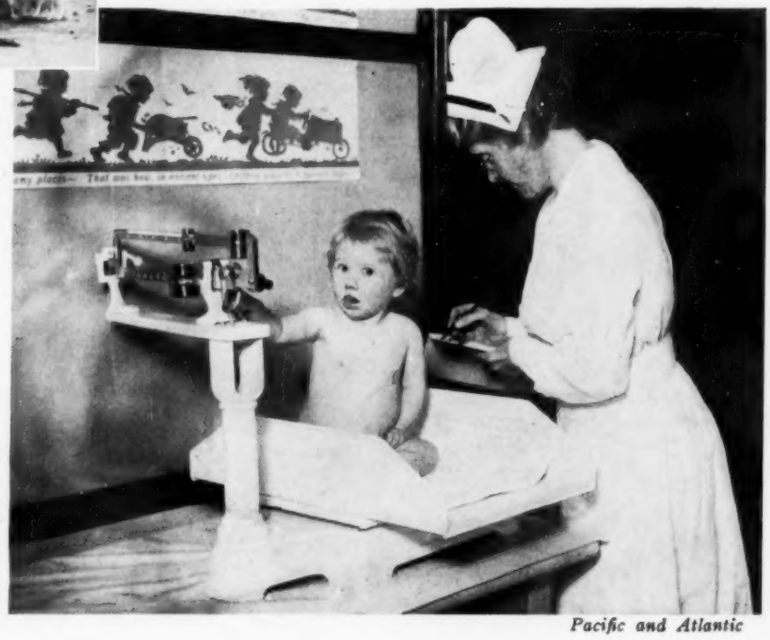
Pacific and Atlantic

HEALTH STATION FOR BABIES OPENS

This seventeen-month-old infant was one of the early patients at the new Baby Health Station opened in New York two months ago. Baby is trying to weigh herself to be sure that it is done fairly.

"TIME FOR YOUR NAP"

"Come on in now and have your afternoon nap," says the lioness to her cub. Like most babies, this one needs a little assistance from mother in seeking a daytime couch. The photo was taken in the London zoo.



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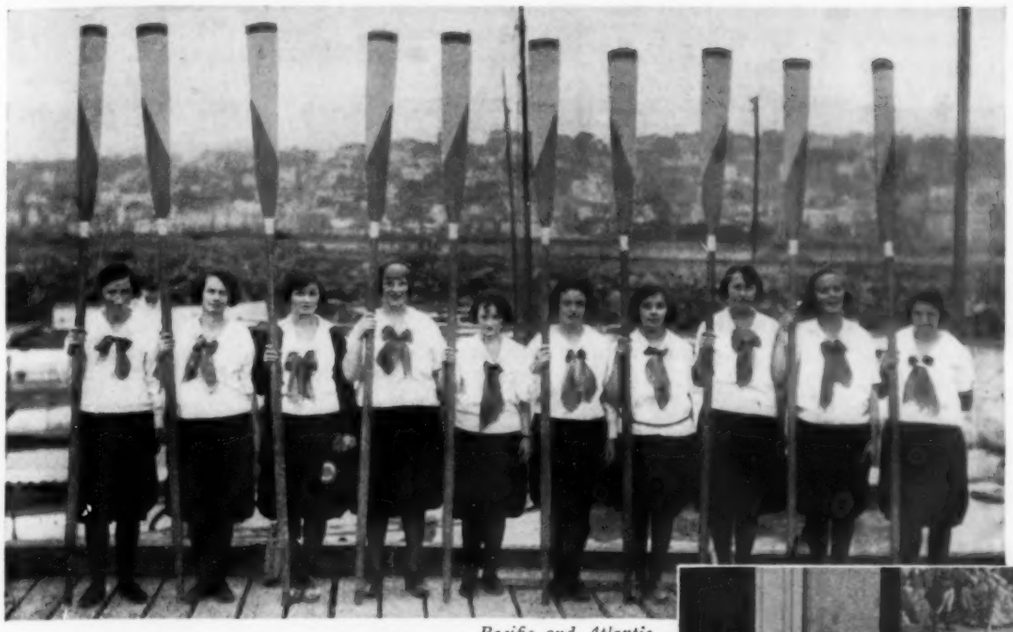

Pacific and Atlantic

GIRLS IN CUTTER RACE

High school girls in San Francisco recently competed in a spirited rowing race. The race was held in the yacht harbor of San Francisco Bay, and these oarswomen of Mission High School carried off the title. Five schools were entered.

HELPS BOTH RUSSIANS AND COMPLEXIONS

A diet of bread and milk two nights each week has been adopted by the girls of Manor House dormitory, Hamline University, Minneapolis. The money saved through this simple fare goes to the aid of starving Russian students. The girls say the limited diet is helping their own complexions as well.

Pacific and Atlantic

WILL AID OTHER BLIND GIRLS

Although she has been blind since she was six years old, this Washington, D.C., girl designed and superintended the construction of the College Inn in that city and from its operation has made $6,000, which she plans to use in obtaining for herself an advanced degree and in helping to educate blind girls.

Pacific and Atlantic

WILL HELP TOWNS BUY PLAYGROUNDS

Believing that smaller towns and cities need established playgrounds as much as the great metropolitan centers, the division of playgrounds of the Harmon Foundation, 140 Nassau Street, New York, has announced that for a limited time it will contribute to communities wanting to buy land for playgrounds 25 per cent. of the purchase price of the land, the maximum contribution being $1,000.

This offer is made to any growing town under 15,000 population where the Parent-Teacher Association will assume the responsibility of raising 75 per cent. of the cost of the land and will guarantee that this land will be deeded in perpetuity for play and recreational use only, and will be developed and maintained for such use.

The Harmon Foundation must be notified in advance of the proposed plan of the organization, and it will then take up the local situation with the individual Parent-Teacher group, according to an announcement in the *Child Welfare Magazine*.

Applications for such help must be in before March 1, 1924, when the offer expires. The fund appropriated for the purpose is limited and applications for such help will be considered by the Foundation in order of their receipt.

For communities where the time does not seem to be opportune for raising money to buy land for playgrounds, the Foundation offers to buy a piece of land not exceeding $2,000 in cost and to lease it without charge to the local organization for a period of five years, with the option to buy at cost plus interest at the rate of four per cent. a year.

The Foundation is working on the idea, says M. L. Stoughton, director of the division of playgrounds, that the leisure time of boys and girls well directed furnishes even greater opportunity for inculcating high standards of life and health than do the hours in school. In respect to directed play, the city boy is better off than the small town child.

Underwood & Underwood

Leap frog, of course, is not a favorite parlor game, but on the playing field or in the gymnasium it is a good live sport. Girls need plenty of vigorous outdoor exercise, especially after long hours in the schoolroom.

CHILDREN IN SAXONY ENTERED IN HEALTH RECORD BOOK

As soon as a child starts to school in Saxony, his name is entered on a health record book. There, throughout his entire school career, is kept a complete record of his various illnesses and the general state of his health.

One use to which this information is to be put is in helping to choose occupations for children when they are through school. By knowing the weaknesses and defects of a pupil, his teachers can advise him to enter some work where these weaknesses will count little. In fact the main idea behind this order of the superintendent of public instruction is to dissuade young people from entering upon lines of work for which they are not physically suited.

MIRRORS IN THE SCHOOL BUILDING

The principal of the Washington Irving high school in New York asked that full-length mirrors be installed in the girls' rooms so that they might note their own posture and their personal appearance. This was eleven years ago. The superintendent of schools denied the request. Today, writes William McAndrew in *The World's Work*, there are 5,563 mirrors in that school each personally owned and carried in a box shamelessly called a "vanity."

The writer recounts this incident in telling how Superintendent William Holmes of the schools in Mount Vernon, N. Y., recently has had mirrors placed in the school corridors to encourage children to give the right care and attention to the body.

SCHOLARSHIPS TO PHYSICIANS

Announcement was made some months ago by the American Child Health Association that the sum of $10,000 would be awarded in scholarships to physicians having a special interest in child welfare, and seeking opportunities to better fit themselves for service in that field. The purpose of the scholarships is, broadly, to stimulate interest in child health work, and to provide means for better training along this line.

More than 101 applications were received from physicians in 36 states. From these applicants 15 have been chosen on the basis of graduation from an accredited medical school, and on evidence of the candidate's real interest in child health work as shown by training and experience.

The special committee on physicians' scholarships was composed of 21 physicians interested in the diseases of children.

ONE CAUSE OF BLINDNESS CONTROLLED

One of the most frequent causes of blindness is an inflammation of the eyes which is due to an infection during birth, and known as ophtholmia neonatorium (inflammation of the eyes of the newly born).

The disease is easily prevented by dropping into the eyes of the infant immediately after birth two or three drops of a 1 or 2 per cent. solution of nitrate of silver. This procedure is required by law in a number of states, among them, Illinois, and it is reported that in Chicago, where the law is now rigidly enforced, there occured in 1923 not a single case of blindness from this infection in a total of 56,724 births.

BOOK REVIEWS

HOME PLAY, SUGGESTIONS FOR RECREATION IN THE HOME AND NEIGHBORHOOD: By the Playground and Recreation Association of America. Paper Booklet. Price 40 cents. 96 pages. 315 Fourth Avenue, New York City.

But I love the modern mother who can share in all the joys,
And who understands the problems of her growing girls and boys;
She may boast that she is sixty, but her heart is twenty-three—
My glorious, bright-eyed mother who is keeping young with me.

So sings Florence Howard Wolcott and so sing many children, small and grown, who have learned to find in the home the companionship of a loving, understanding fun-provoking mother and father.

This little booklet "Home Play" published by the Playground and Recreation Association of America, with the expert advice and suggestions of Charles H. English and Edna G. Meeker, was compiled, apparently, as a source of information for parents who are anxious to keep their children interested in the home.

During the past few years the tendency has been to seek the major portion of recreation and play life away from the home. Parents have lamented their inability to understand or to influence their children.

The Playground and Recreation Association of America, which calls "the yard the original playground and the home the original recreation center," believes that through play life with children and through a larger use of the home as a recreation center for the whole family, a stronger feeling of understanding will be brought about and home life will be enriched; that individuals will have more to give to the community and thus there will be a balance of interest and service which will conserve for America the spirit of home so fundamental in the development of our character as a nation.

The Brown family is taken as the typical American family in this little booklet. The oldest is an eighteen-year-old girl, then there is a lad in high school, a boy of twelve, and a baby girl. Helen, the oldest girl, describes the work and pleasure of her family in an interesting narrative form. Before you realize it you are culling from the wealth of information something that will be suitable for your family and will interest them. But this is not all. "Home Play" will give you suggestions for recreation in your neighborhood.

THE HOME AND HEALTH IN INDIA: By Kate Platt, M.D., S.B. (Land). Formerly Principal Lay Hardinge Medical College and Hospital for Women, Delhi, India. Price, $2.25. Pp. 216. William Wood and Company. New York.

One who is to take up residence in a foreign country, especially in the tropics, or even to spend a considerable time there as a sight-seeing traveler, finds comforting help in the advice of one who has first-hand knowledge of that country. It is for such prospective sojourners in India and the tropical British possessions that this book is written.

The peculiarities of climate of these regions are described briefly, coast and interior, mountain and lowlands, the types of houses—bungalows usually—their furnishings and surroundings, the social life, the retinue of servants, with emphasis on their faithfulness to their employers, but also their inflexible adherence to native customs and tradition.

Careful directions are given as to preparations for the long sea voyage to India, and the precautions to be taken. A chapter on infant welfare points out the special features of baby care in the tropics where artificial feeding is more difficult to manage than in the temperate regions. Chapters on the health of the child, infantile maladies, the nurse and the nursery, duration of stay in the tropics, tropical diseases, other infectious diseases, skin troubles, bites and stings, all are on the whole very sensibly written.

The author protrays, with sufficient detail, the signs and symptoms of the diseases which may afflict children especially in the several tropical countries mentioned. The description is adequate to give the mother—perhaps isolated in some lonely frontier station—some idea of what may be the matter with her sick child, but emphasizes the necessity of seeking a physician's aid as soon as possible. Only such specific remedies are mentioned as the layman can be safely trusted to use in an emergency.

The book is a medical Baedeker for the official who is going out to the distant portions of the British empire in government service, for the missionary and his family, or for the man traveling there.

FOOT KNOWLEDGE: By Herman W. Marshall. First Edition. Cloth. 150 pages. Boot and Shoe Recorder. Boston. 1923.

This is an interesting booklet of 150 pages with about 30 well chosen illustrations, written by a physician and published by a trade journal. It is a fair attempt to furnish both the shoe man and the physician with a proper insight into the other's province. It is interesting from the physician's standpoint as affording a general idea of the various features and qualities of the many kinds of special shoes on the market with an attempt to indicate their advantages and disadvantages with normal and abnormal feet.

To the shoeman it presents enough anatomy, physiology, and pathology to deter the conscientious dealer from claiming relief from all foot symptoms by using a certain brand of much advertised shoes. If its precepts are followed by both the physician and the shoe salesman it will be a factor for very definite advancement in their respective provinces.

CIVILIZATION AND THE MICROBE: By Arthur Isaac Kendall. Dean of Northwestern University Medical School, Chicago. With illustrations. Price $2.50. Houghton Mifflin Company. The Riverside Cambridge Press. 1923.

There are good microbes and bad microbes, and although man is chiefly concerned with the bad ones, the good ones are greatly concerned with him. If they were not, man would pass from this earth. Everywhere the bacteria exert their influences. As has been said, their action, for the most part, is beneficent; man's attention has for the present been turned to the control and dispersion of those bacteria which menace his life. When these are once conquered, man may look forward to the exploitation of the assisting bacteria, which enrich his life.

Dr. Kendall prepared this description of bacteria and their growth with a view to instructing the high school student, who becomes confused by the fragmentary information presented in the ordinary courses related to this subject. The discussion is logical and well organized. If there is any fault, it is the somewhat technical character of the language used, but it is doubtful that any adequate discussion of what is essentially a very technical subject could be made without a certain amount of such technical diction.

QUESTIONS AND ANSWERS

If you have a question relating to health, write to "Questions and Answers," HYGEIA, enclosing a two-cent stamp. If the question is of general interest, the answer will be published; otherwise it will be sent by mail. Questions are submitted to recognized authorities in the several branches of medicine and answers framed by them. The names of correspondents will not be published. Diagnoses in individual cases will not be attempted nor treatment prescribed.

Pain in Temple

To the Editor:—Please tell me the cause of a pain in my temple, a pain which sometimes extends to the back of the head. The pain is very severe at times; relief comes for two hours or more, and then it is back as bad as ever. I sometimes do not have it for months.

G. D., Indiana.

Answer.—The causes of pain in the head are quite numerous, and it is not possible without an examination and study of the history of the pains to answer the question. The brief account given of the trouble indicates that the pain might be due to spasmodic facial neuralgia, for which much can be done. It is recommended that the patient consult the family physician and if he cannot solve the problem ask him to recommend a nerve specialist.

"Luminal" for Epilepsy

To the Editor:—Will you kindly inform me if "Luminal" taken for epilepsy is harmful? Of just what does it consist? I have been taking 1½ grains per day for the past 2½ years and find this amount controls my "grande mal" attacks. I have, however, the usual "petite mal" attacks which while distressing I am able to handle. I am under the impression that if I increased the dose I could prevent the attacks altogether. Would you consider it wise to do so?

J. A. C., Canada.

Answer.—"Luminal" is a trade name for a chemical substance known as phenobarbital. It is a pure chemical and not a mixture of different drugs. The dose that is being taken is probably the maximum that it is safe to use, and it is customary to avoid the danger of having the substance accumulate in the body by not taking a dose of it every day in the week.

Phenobarbital is far from being a harmless remedy and should be taken only under the prescription of a physician. It is quite possible that as great an effect might be had from a smaller dose; the amount taken should not be increased without first consulting a physician who will be able to watch for ill effects.

Mental Hygiene in Schools

To the Editor:—Could you inform me as to whether mental hygiene taught in the schools would have any effect in reducing the number of insane.

A. H., Kansas.

Answer.—Mental hygiene, like bodily hygiene, is a matter of establishing habits of living, thinking and meeting life's problems. This cannot be taught to children in a didactic way.

Schools now teach mental hygiene, though they often call it by another name, when they train children in behavior. Most often, however, this training is based on more or less arbitrary rules and customs, and the teacher does not understand the purpose that lies behind the teaching.

The principles of mental hygiene should be taught to every school teacher and parent so that the training of children may be based on an intelligent appreciation of the child's longing and needs, the meaning of mischief, nervousness and bad temper in the "difficult" child.

There seems little doubt that at least some of the insanity of later life, and even more of the nervousness, nervous breakdowns, chronic invalidism, neurasthenia and hysteria, are the direct outcome of the fact that the child has not learned how to adjust his longings to the restrictions placed on him by social regulations.

The intelligent introduction and application of mental hygiene principles into the schools would, therefore, do much to diminish these disorders. But it is the teacher who should be taught them and learn how to apply them to the every-day problems of the individual school child.

Nervous Disorder

To the Editor:—Will you please see if you can help me? I am suffering terribly with nerves, and apparently there is no cause for the condition I am in. I have spells of shaking in which it seems like every bit of flesh on my bones just shakes violently. I am frightened at the way I feel and have used and do use all the will power I possess to fight off these attacks. I feel a tendency to shake all the time. I have no appetite but sometimes have a pain like a hunger pain in the pit of my stomach. My flesh is very dry, and I want water constantly; there does not seem to be any saliva in my mouth. Recently I was examined, but the doctors could find nothing wrong and told me it was "just nerves."

Just nerves! I feel that if I don't get help something terrible will happen to me. Please tell me what to do. There is a feeling of tightness around my jaw muscles that is unpleasant too. My hands and feet are cold all the time.

I am happily married and am a big healthy looking woman but am nearly beaten by this illness, whatever it is.

A. W. H., Illinois.

Answer.—It is quite impossible to undertake the diagnosis of disease and the treatment of patients by correspondence.

The condition that you describe is very strongly suggestive of functional nervous disorder, by which it is meant that there is something wrong in the manner in which the problems and conditions of life are being met.

From the story of the examinations that have been made, it appears probable that there is not an actual disease of organs, but rather a faulty manner of using them, and there is needed a close study of the mode of living and a search for hidden sources of worry and dissatisfaction. Ask the family physician to recommend someone who gives special attention to such disorders.

Skipping Heart Beats

To the Editor:—What should make the heart skip beats? Is it dangerous? I have these spells when I feel nervous. Suggest a remedy.

J. B., North Dakota.

Answer.—The sensation of the heart skipping beats is a symptom which is common to several types of cardiac irregularities, each of which has a different meaning to the physician. Usually what is known as premature contraction is responsible for the complaint. This type of heart irregularity appears in all ages. There is rarely a person who does not some time

during life have an occasional premature contraction of the heart. Often there is no demonstrable disease of the heart. The person may have a hypersensitive nervous system and the skipped beats appear during periods of excitement. In some, digestive disturbances or excessive use of tobacco are exciting factors. In a large percentage of cases there is, however, definite disease of the heart.

Chilblains

To the Editor:—Why is it that I never get chilblains in New York, while I do get chilblains in Bolivia and other countries where it never gets as cold as it does in New York? I have gone through twenty severe winters in New York, and my hands never get more than chapped, while in other countries in weather only a few degrees below freezing point my hands are covered with chilblains that after a while break open.

O. H. L., Argentina.

Answer.—Perhaps the patient has not chilblains, since chilblains are sure to be worse in cold weather. There are other things which might be confused with chilblains; for instance, ring-worm of the feet and hands.

Ptomaine Poisoning

To the Editor:—I have just suffered a severe attack of ptomaine poisoning and am writing to you for the best medical treatment which can be advised under such circumstances. The interesting thing in connection with my own case is that I am not able to attribute it to spoiled food of any character, so far as it is possible to determine. The only explanation for its onset that appears to be at all reasonable is the eating of walnut meats used in the making of chocolate fudge, but the nuts were carefully picked and nothing of a suspicious character or appearance was included. I have heard from several sources that walnuts frequently produce severe cases of poisoning or something similar to it, and I should like to have you advise me along this line, in addition to furnishing me with what is considered to be the most satisfactory medical treatment in cases of ptomaine poisoning. J. W. R., Arkansas.

Answer.—Unspoiled walnuts in chocolate fudge would not cause any trouble. When digestive disturbances are occasioned by fresh walnuts, it is due to an idiosyncrasy on the part of the individual. Most likely a skin test made with the proteins prepared from walnuts would reveal a positive reaction in this and in similar cases. The treatment is obviously the avoidance of substances which have been found to cause trouble. Once the symptoms have occurred, measures suitable to relieve them are carried out. This consists chiefly in laxative measures to eliminate the toxic material and, in addition, any stimulation that may be needed. It is usually best to refrain from all foods for a short period and in most cases the acute disturbance subsides promptly.

Appendicitis and Chipped Enamel Ware

To the Editor:—Is there any truth to the statement made by agents of a competitive line that cancer and appendicitis are caused by chips of enameled ware taken into the stomach. I am under the impression that a pre-war investigation in Germany and Austria, by Kaiser Wilhelm, proved that these claims were not based on fact.

F. M., Wisconsin.

Answer.—According to an article by C. F. Langworthy and H. L. Lang in the *Journal of Home Economics* in 1915, the Superior Council of Hygiene of France recommended legislation forbidding the use of enamel ware meat choppers in the production of Hamburger steak on the ground that particles might be broken off and get into the meat.

However, the authors state that there appears to be no case on record in which it is known that any serious injury has been done to the intestinal wall by enamel particles.

It is generally well known that various types of concretions, such as seeds and particles, may be found in the appendix at operation, but there appears to be no scientific evidence that chips of enamel ware are very frequently found.

Stealing by Children

To the Editor:—Please tell me if an operation would be of any value in curing a boy who is inclined to steal. He takes anything and everything he sees and seems to have no knowledge of committing such acts. Are such operations ever performed? Are they successful? W. O., Oregon.

Answer.—The causes of stealing by children are numerous and most often have no relation to disease in the ordinary sense of that term. Taking what one wants or appeals to one's fancy is a natural action, the avoidance of which must be learned by children as they grow up.

Failure to learn this lesson may be the result of something wrong with the teaching or of something lacking in the child. It may also result from distorted or unsatisfied desires of the child as a sort of compensation for his failure to gain what he wants.

In all cases in which difficulty is experienced in training children not to take things that belong to others, it is important to have the child studied by someone experienced in studying the behavior of children in order to find the cause and establish the proper treatment. This should be done as early as possible, for the longer the habit is practiced the more difficult it is to break.

There is no operation for the cure of stealing any more than there is an operation that will stop a boy from reading too much, or make him a genius.

Asthma

To the Editor:—A friend of mine has for some time been afflicted with asthma. Sometimes we almost think she is going to choke to death, and then she gets better and perhaps enjoys good health for a while. Just what is this dreadful disease, and what causes it? Is there any cure for it, and if so how can it be accomplished?

R. H., Kansas.

Answer.—The term "asthma" is very often loosely used by the general public to denote any form of shortness of breath. The word is derived from the Greek and means "panting for breath." If used by a physician, it is usually understood to mean bronchial asthma.

This disorder is characterized by sudden attacks of severe dyspnea (difficulty of breathing). The difficulty of breathing is due to a contraction of the muscles of the smaller bronchi and bronchioli so that the patient is unable to breathe in or breathe out sufficient air to renew his requirement for oxygen.

The underlying cause leading to spasm of the bronchial tubes is, most frequently, poisoning of the patient by certain albuminous substances (proteins) to which the patient is sensitive. This sensitization, or susceptibility, frequently takes place in early childhood and the substances involved may be certain foods, certain animal materials like horse dander or feathers, pollen, or bacteria. The cause can be definitely established by skin tests which should be made by a person very well versed in this work. A cure depends on exact detection of the offending substance which sensitizes the patient.

HEALTH REVIEWS

WHITE VS. WHOLE WHEAT BREAD

Now come E. V. McCollum and Nina Simmonds of Johns Hopkins University to say that we need not eat whole wheat bread, if we don't care to; white bread is just about as good.

It does not make any difference, so far as the health of the nation is concerned, what kind of bread we eat, say these professors of hygiene in the January issue of *McCall's* magazine.

The crux of the whole matter is that the nation's diet needs to be improved, and they believe they have a better way to improve it than by insisting on the use of whole wheat flour.

Although whole wheat flour is superior in many dietary properties to white flour, it is said to be poor in calcium, a serious problem in bone and tooth development, and in vitamin A.

In the proper amount, say the writers, milk will do everything which whole wheat could do to improve our dietary and do it far better; and in addition, it will supply in abundance both the missing calcium and vitamin A. Milk, however, does not aid in the elimination of intestinal waste, but this can be offset by a liberal consumption of leafy green vegetables, such as spinach and lettuce.

"It is doubtful whether whole wheat bread demands to be chewed more than bread made of ordinary flour," the article brings out. Neither has to be masticated to any great extent and the average American is likely to spare his jaws as far as possible from masticatory effort.

"This lazy inclination is an additional reason for eating two salads a day since raw lettuce, raw chopped cabbage, celery and fruits necessitate fairly vigorous exercise of the muscles of the jaws. Such vigorous chewing improves the circulation in the teeth and helps to preserve them. And the salads provide the vitamin C, which is found in fresh raw foods."

THE "GREYHOUND" TYPE

Many persons think that the tall, thin child is like the greyhound, and has the same endurance and strength, says Dr. William R. P. Emerson in an article on "The Growing Child—What Should He Weigh?" in the January *Woman's Home Companion.*

Instead, the child is much more likely to be what is often called medically the "pre-tubercular" type. Even that is too indefinite a term, says Dr. Emerson, as the underweight child is really "pre-everything" that may result from lowered resistance to disease.

The "greyhound" type is not the ideal type, even though the thin, underweight boy and girl may excel in athletics. Underweight is a serious danger sign of failing nutrition and lowered resistance.

Often one hears a mother say that her Johnny is "naturally thin." All of these "naturally thin" children have far better health when they are brought up to normal weight.

Instead of seeking to explain the condition by heredity or type why not try to give every child a chance to realize the full possibilities for health, asks Dr. Emerson. Malnutrition, the effect of underweight, can be eliminated and the child or adult who is at normal weight for his height has the best chance for health.

Several well known colleges are attempting to correct malnutrition among students by means of height and weight charts. Their example will help to remove false standards of physical fitness. Even more is such attention to student health needed in preparatory schools where the results of malnutrition are even more dangerous because of the greater immaturity of the students.

When we see men and women who are abnormally thin and yet apparently in good health, we must remember that we do not see those who have succumbed to illness; we see only those who survive. While it is true that many persons are much underweight all their lives, and live through to old age, there are few who will not admit they would have been better off with more weight.

TWO VEGETABLES A DAY

To serve two vegetables other than potatoes daily is a safe rule to follow.

So says Miss Martha Van Rennselaer, head of the school of home economics of Cornell University, in her home-makers' department of the January *Delineator.*

Her plea is to keep vegetables in the winter diet, so that there will be no need for the "tonic" which used to be the harbinger of spring. All vegetables contain many of the tonic and laxative properties included in that dosage.

In planning the menu for winter, it is safe to include canned tomatoes twice each week without fear of wearying the family appetite. Cabbage, celery and onions keep well in storage and afford valuable minerals as well as vitamins. In order to preserve their valuable food elements, these vegetables should be cooked only enough to make them tender.

Vegetables of any kind possess greatest value when eaten raw. Cabbage salads too may be served twice a week to advantage.

Beets, turnips, squash and carrots are other winter vegetables with high food value. If eaten raw, carrots are particularly good; they may be made into salads.

WHOOPING COUGH

Don't believe a child must have whooping cough, says Dr. Charles Kerley in the January *McCall's.*

In whooping cough there are many possiblities of complications. The child who vomits his food day after day is bound to suffer from defective nourishment and his means of resistance is consequently lowered. Complications of bronchial pneumonia and middle ear disease are not unusual.

In his article Dr. Kerley brings out the fact that whooping cough is contagious largely through contact. An unfortunate feature of the disease is that it may be transmitted before the cough manifests itself. In the average case there is a cough for one or two weeks which is usually attributed to a cold, and by the time the whoop begins the child has exposed the entire neighborhood.

The robust and the weakly stand the same chance of contracting whooping cough. The duration of the disease is variable. Usually there are two weeks before the whoop develops, two or three weeks of the active stage, and two or three weeks for the decline.

In many cases the cough is so mild that the presence of whooping cough is not discovered. Such cases, however, may convey the disease just as readily as a severe case.